



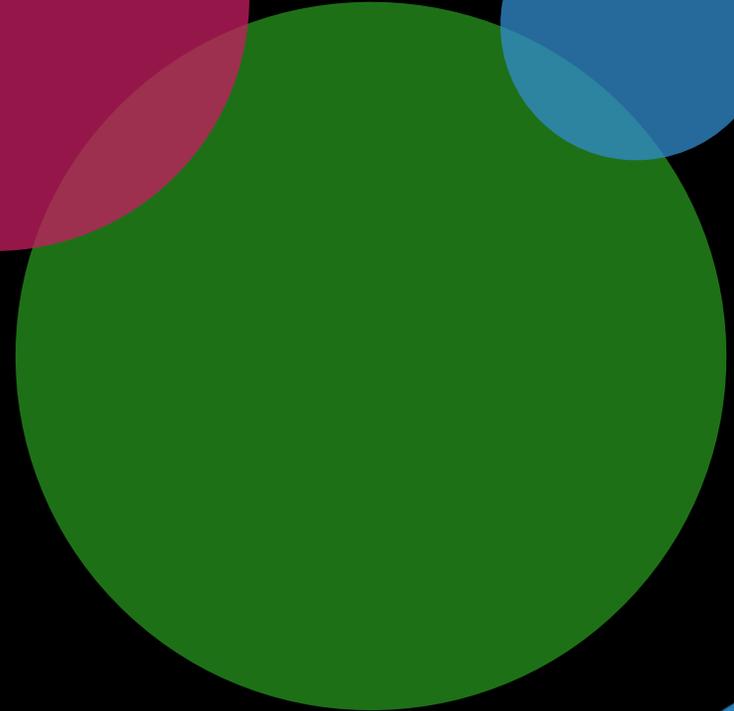
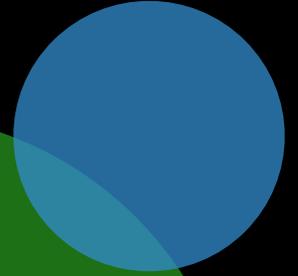
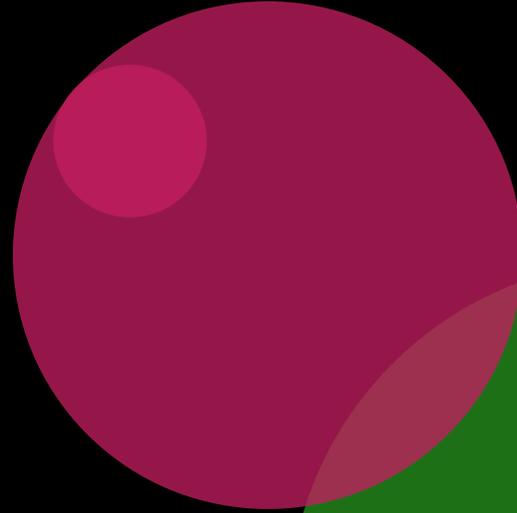
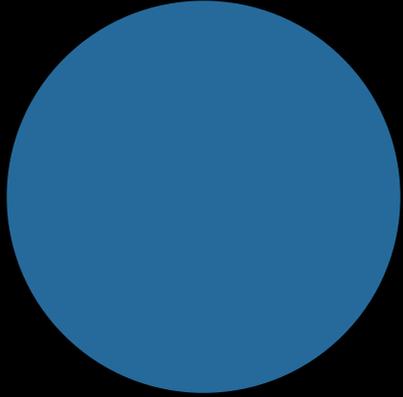
Lessons from Sydney's Salty Community Program

This program and seminar are supported by Sydney Coastal Councils Group through funding from the Australian Government



Australian Government



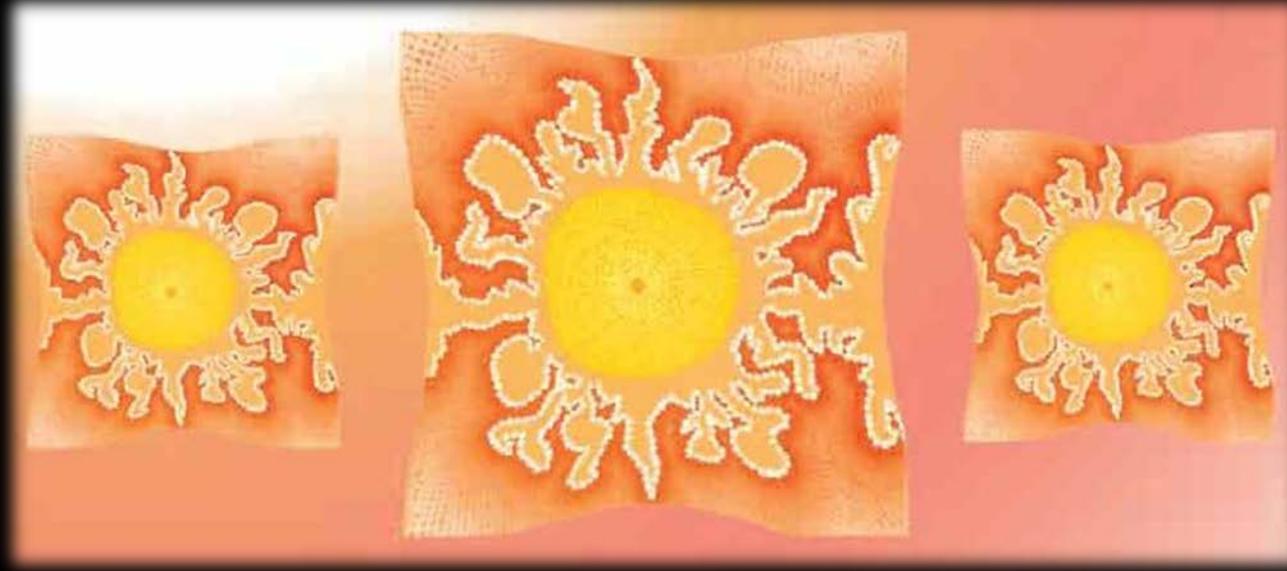


Welcome

Geoff Withycombe
SCCG



Acknowledgement of Country



SYDNEY COASTAL COUNCILS GROUP

Resilient Coasts. Engaged Communities. Local Leadership. Regional Impact

- Established in 1989
- Co-operative Regional Organisation of Councils – 11 Member Councils
- 1.5 million Sydneysiders
- 800km² adjacent to Sydney's coastal and estuarine areas
- 600km of coastline

OUR MISSION:

To lead sustainable management of the coast through collaboration, capacity building, advocacy and research





UNIVERSITY OF WOLLONGONG AUSTRALIA



Common Cause Australia



EMERGENCY PROCEDURES

IN AN EMERGENCY TELEPHONE:

FIRE BRIGADE
000
POLICE
000
AMBULANCE
000

WHEN YOU DIAL THE EMERGENCY NUMBER:

1. Advise location
2. Provide your name and telephone number and any other information requested by the operator.

IF YOU HEAR THE FOLLOWING ALARMS:

ALERT  Beep Beep Beep
ACTION: All workers to respond. Staff to check immediate areas for signs of danger and stand by. Outside normal working hours immediately evacuate on sounding of the Alert Alarm.
EVACUATION  Whoop Whoop Whoop
ACTION: All staff evacuate via the nearest exit and proceed to the assembly area.

IN ALL CASES, ADVISE PROPERTY MANAGER

EVACUATION PROCEDURES



Whoop Whoop Whoop
IF IN IMMEDIATE DANGER, or on hearing the evacuation alarm, or on being instructed to evacuate:

1. If safe to do so secure your office and evacuate the building via the nearest exit and proceed in single file in an orderly manner to the assembly area.

DO NOT USE LIFTS

2. Do not re-enter the building unless advised to do so by an authorised person.

N.B. OUTSIDE NORMAL WORKING HOURS EVACUATE ON SOUNDING OF THE ALERT TONE.

KNOW YOUR EXITS

EXIT



FOR YOUR SAFETY MAKE SURE YOU KNOW THE LOCATION OF THE NEAREST EMERGENCY EXIT

FIRE EXTINGUISHERS & HOSE REELS

IF SAFE TO DO SO:

FIRE EXTINGUISHERS



Select the correct extinguisher

1. Remove from bracket.
2. Carry to scene of fire.
3. Whilst clear of fire remove pin and test the extinguisher
4. Proceed to fire and initially from a distance of no closer than 2 metres direct agent at base of fire.

FIRE HOSE REEL



1. Open valve (ensure that hose reel is turned off at nozzle).
2. Run out hose toward scene of fire.
3. Open nozzle and direct stream at base of fire.

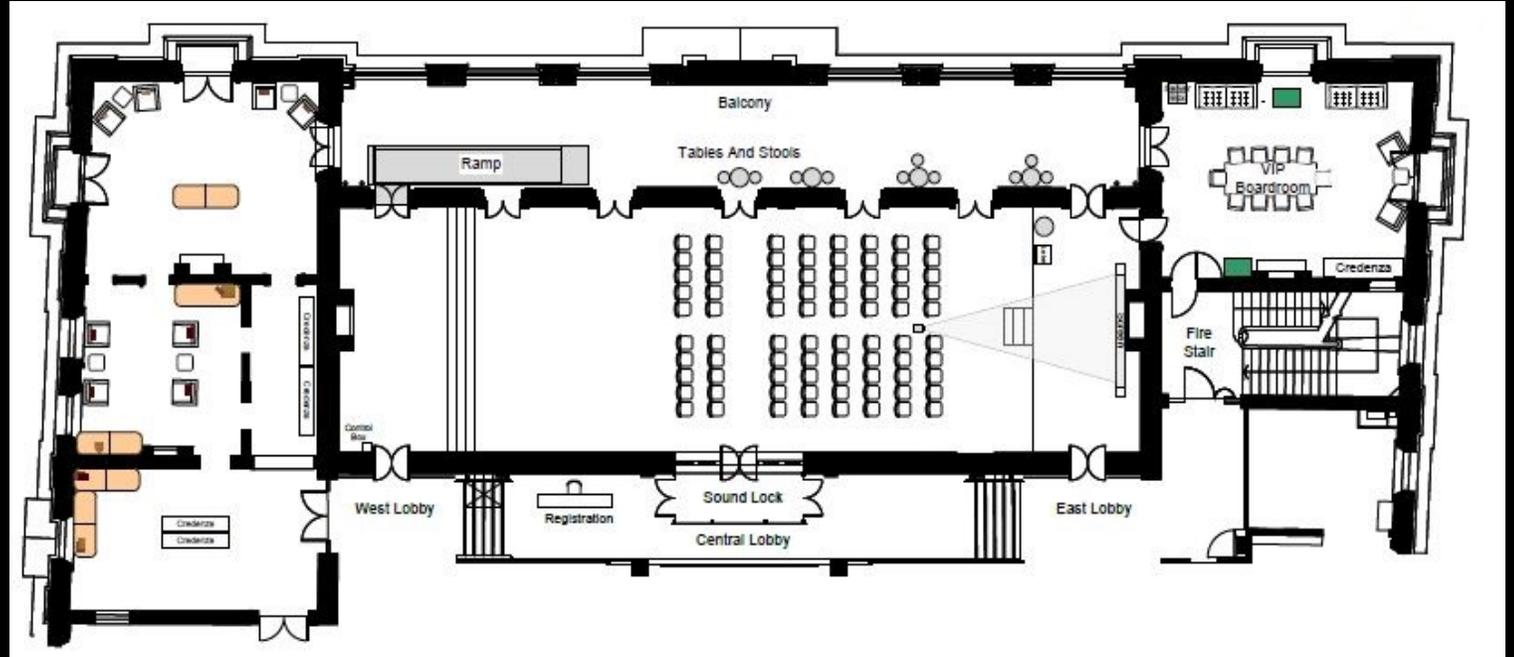
N.B. NOT FOR USE ON FIRES WITH AN ELECTRICAL HAZARD.

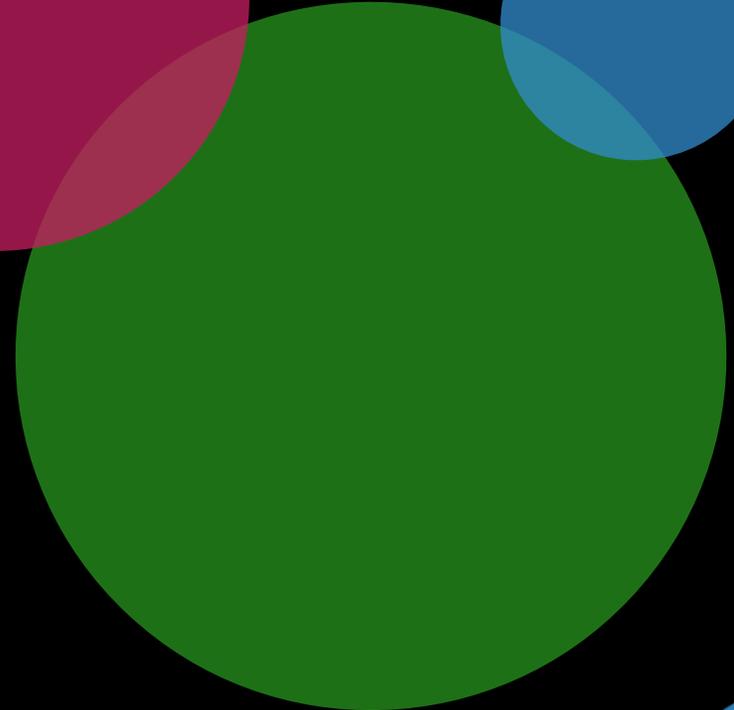
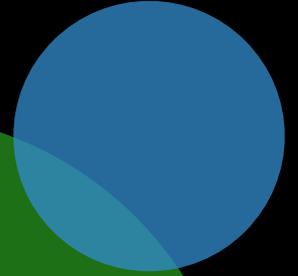
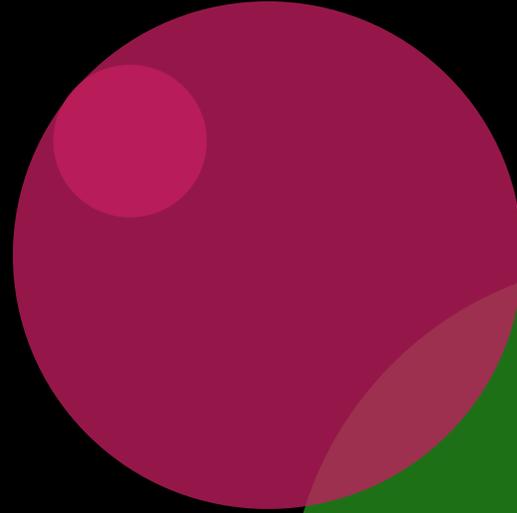
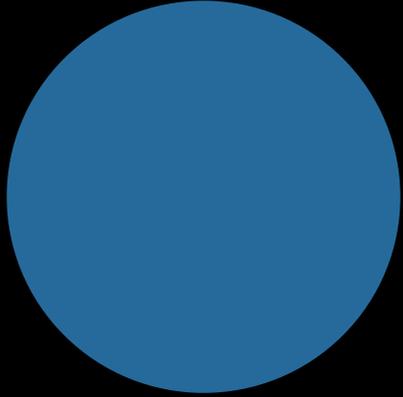
BOMB THREAT PROCEDURES

1. Remain Calm.
2. Record exact wording of threat.
3. Keep the caller talking – try to obtain as much information as possible using the Bomb Threat Checklist.
4. Report call to: **CHIEF WARDEN, YOUR MANAGEMENT and POLICE ON "000"**.
5. Record details of caller's voice and background noise.
6. Await instructions from authorised persons.
7. **DO NOT HANG UP PHONE AFTER CALLER HAS FINISHED.**



city of villages





Fiona Shadbolt
SCCG

Program Introduction



Sydney's salty communities

photo: Jenny O'Meara



turning the tide for blue+green carbon





science

mapping

planning

participation

restoration

monitoring+evaluation

legacy

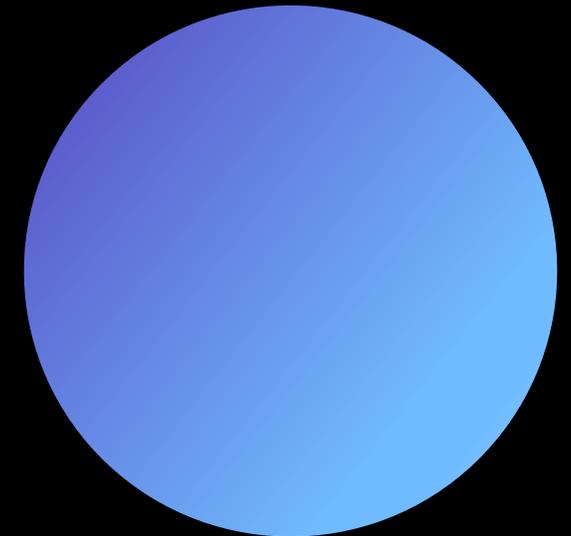


Develop the necessary **information, methods and tools** to minimise the loss of environmental values resulting from current and future population and climate impact on foreshore and intertidal lands.

Develop, promote and **implement a grants program** to deliver biodiverse plantings, protect and enhance native vegetation and manage invasive species in a connected landscape.

Develop **strategic and planning documents** which promote biodiversity resilience in the face of climate change.

Develop and implement inclusive education, outreach and biodiversity custodian programs **to support a community of practice** and maintain capacity in the wider community.





Expert and Working Groups

Literature, Data and Practice Review

Main Grant Round

Climate Ready Tool

Supplementary Grant Round

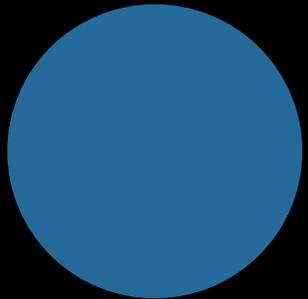
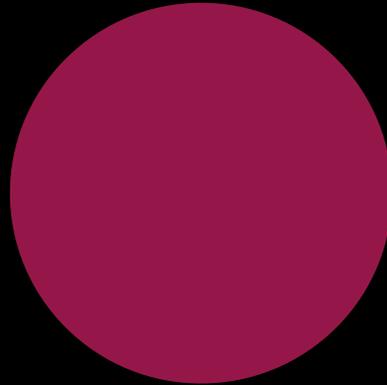
Special Projects

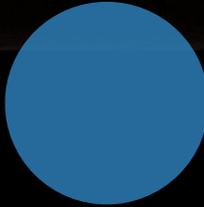




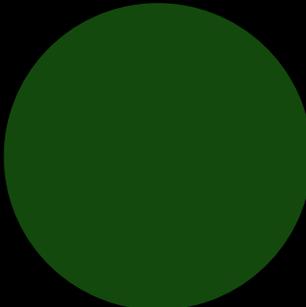
Community of Practice

Working group & Expert
Reference Group



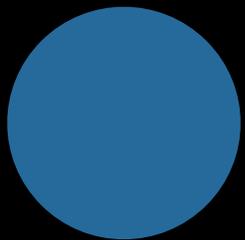
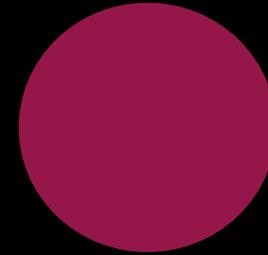


Literature, Data and Practice Review

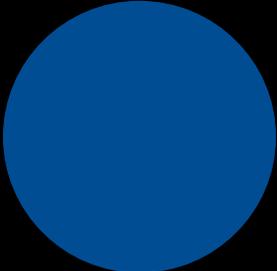
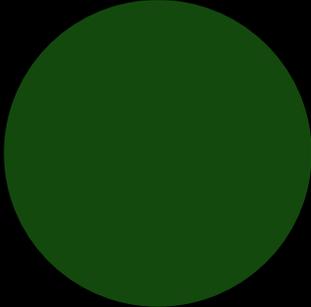
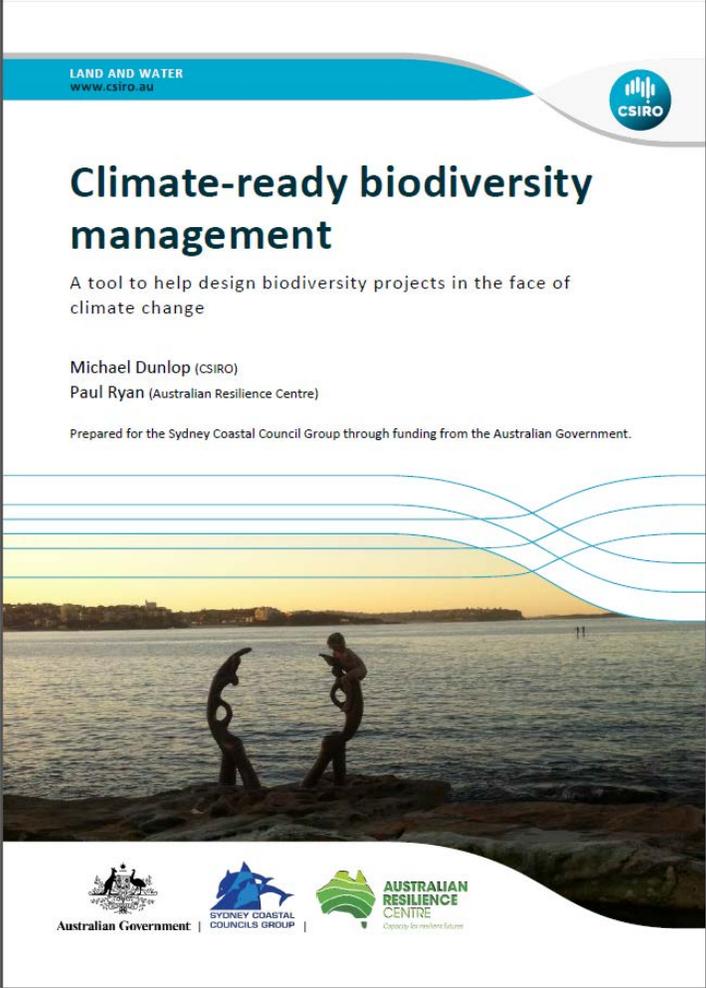




Main Grant Round – 11 projects



Climate Ready Tool





Supplementary grant round –
6 projects

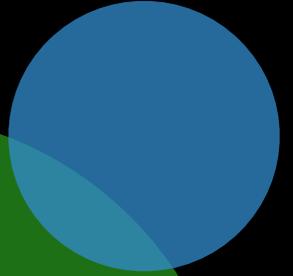
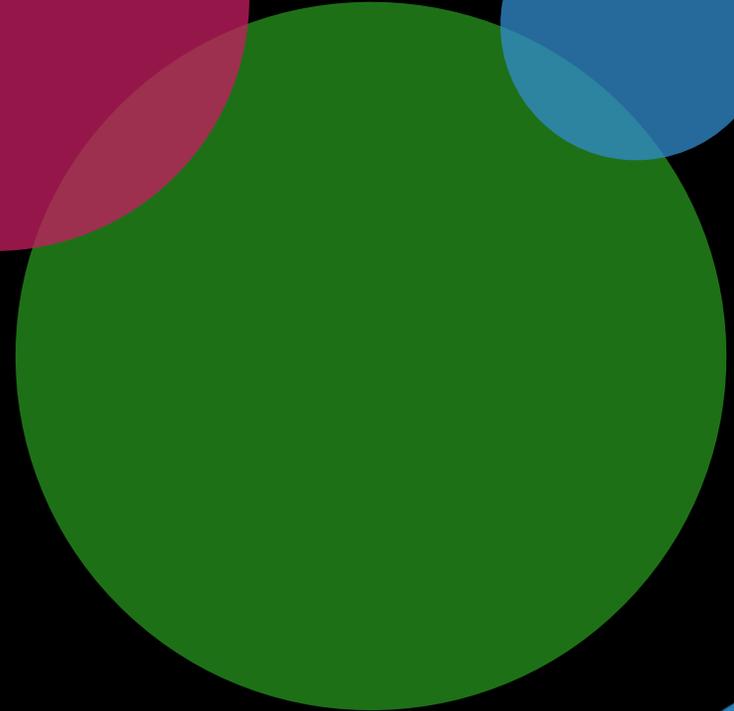
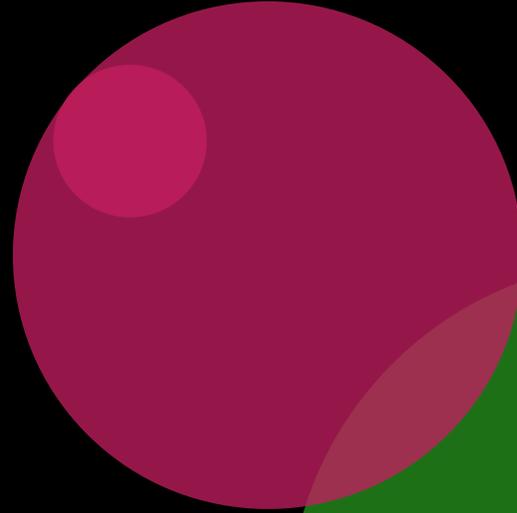
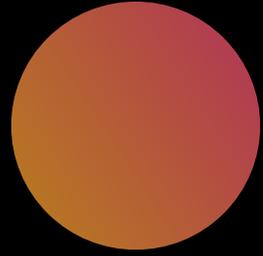
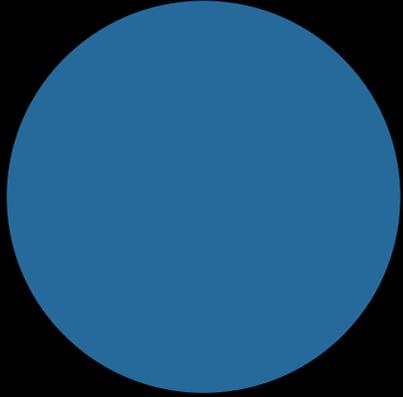
Special Projects





Factsheets have been developed – available on the SCCG website/projects/Sydney's Salty Communities



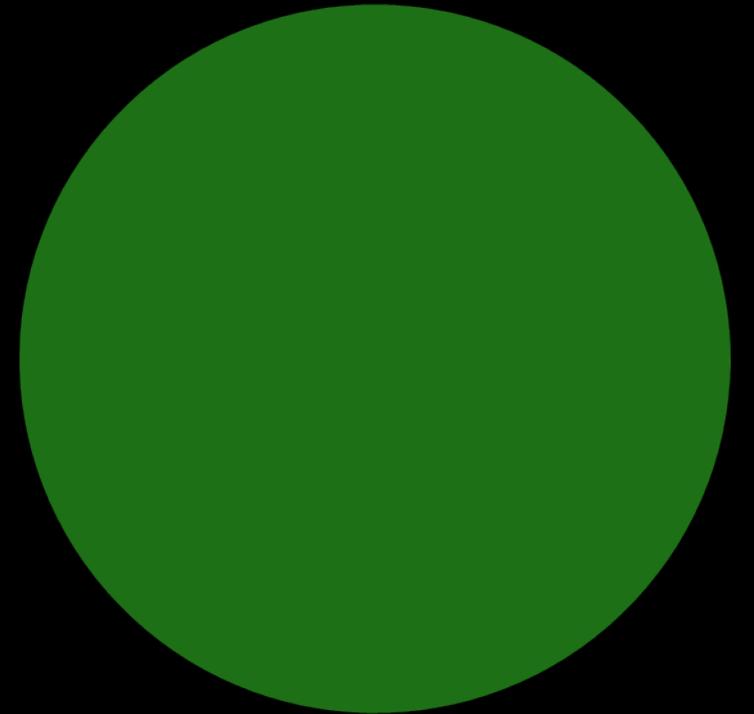


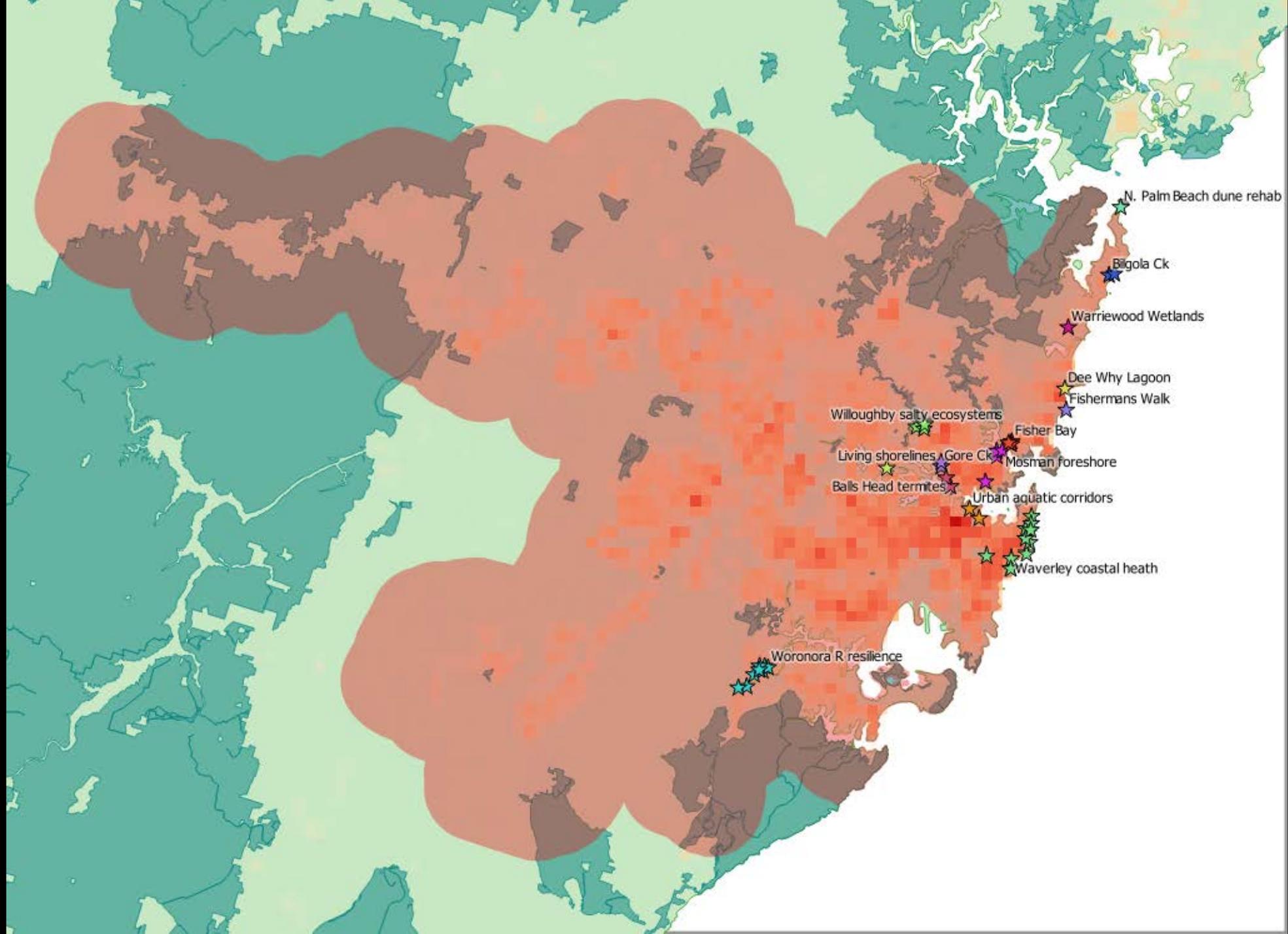
Duncan Webb
SCCG

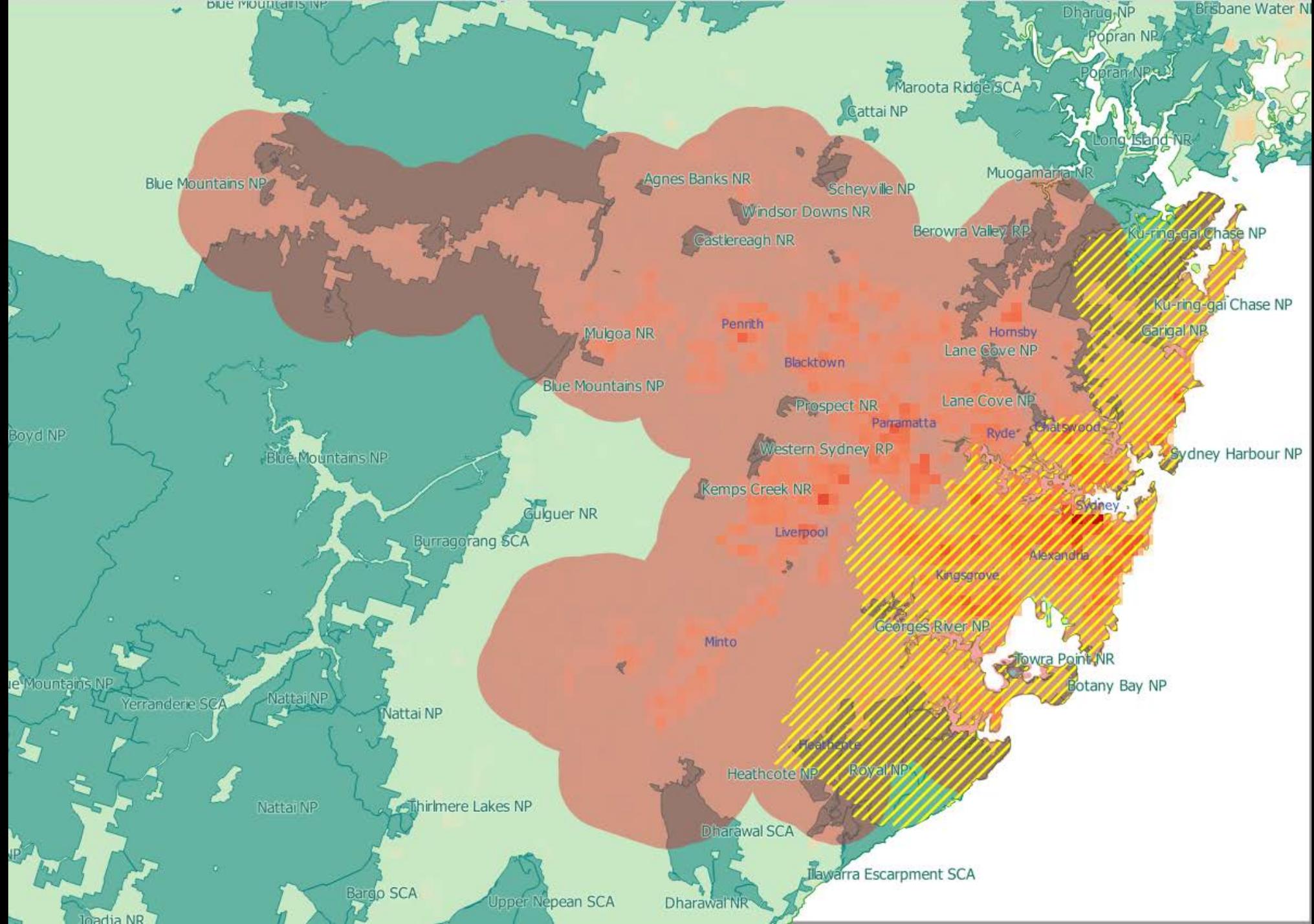
Program Results



- 17 on-ground projects supported with \$1.3million
- Literature, Data & Practice Review
- 11 Main Round projects
- 6 Supplementary Round projects
- 4 Special Projects









MERIT: Monitoring Evaluation Reporting and Improvement Tool

Project blog

[New Entry](#) [Edit](#)

Project photos



[Hollows as Homes citizen science website](#) [Oyster shells part of the plan to hel...](#) [Hollows as Homes Youtube channel](#) [Bird Survey Training Workshop](#)

News & events



Fox Sightings reported through FoxScan app

Nearly 500 foxes have been reported using the FoxScan app in the southern Sydney region during the Southern Sydney Fox Manag

Progress against Output Targets

Revegetation Details

Area of revegetation works (Ha) [?]

11.66/7.4

Number of plants planted [?]

66,038/60588

Kilograms of seed sown [?]

2/2

No. of plants planted > 2 metres in height [?]

10,420/7105

No. of plants planted < 2 metres in height [?]

55,618/52483

Kilograms of seed sown of species expected to grow < 2 metres in height [?]

2/2

Participant Information

No. of volunteers participating in project activities [?]

Weed Treatment Details

Total new area treated for weeds (Ha) [?]

122.03/57.8

Plant Propagation Details

Total No. of plants grown and ready for planting [?]

4,728/2500

Fauna Survey Details

No. of fauna surveys undertaken [?]

3/3

Flora Survey Details

No. of flora surveys undertaken [?]

Pest Management Details

Area covered (Ha) by pest treatment actions [?]

841.8/317.1

Total No. of individuals or colonies of pest animals destroyed [?]

139/60

Pest Observation and Monitoring Details

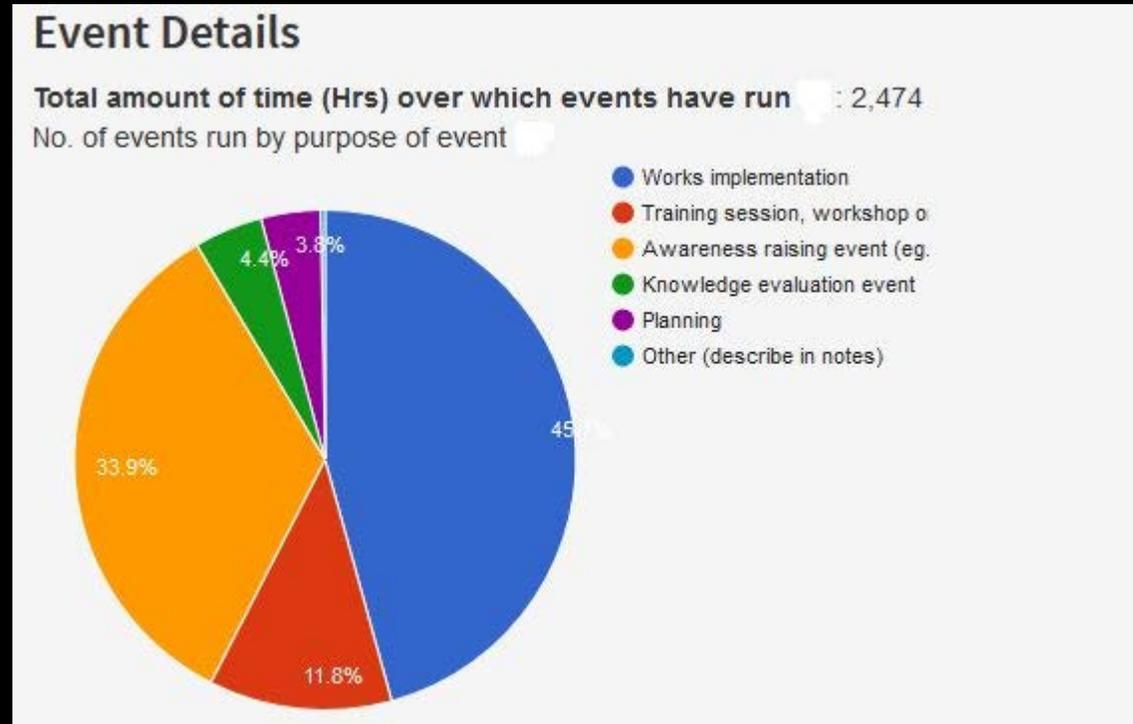
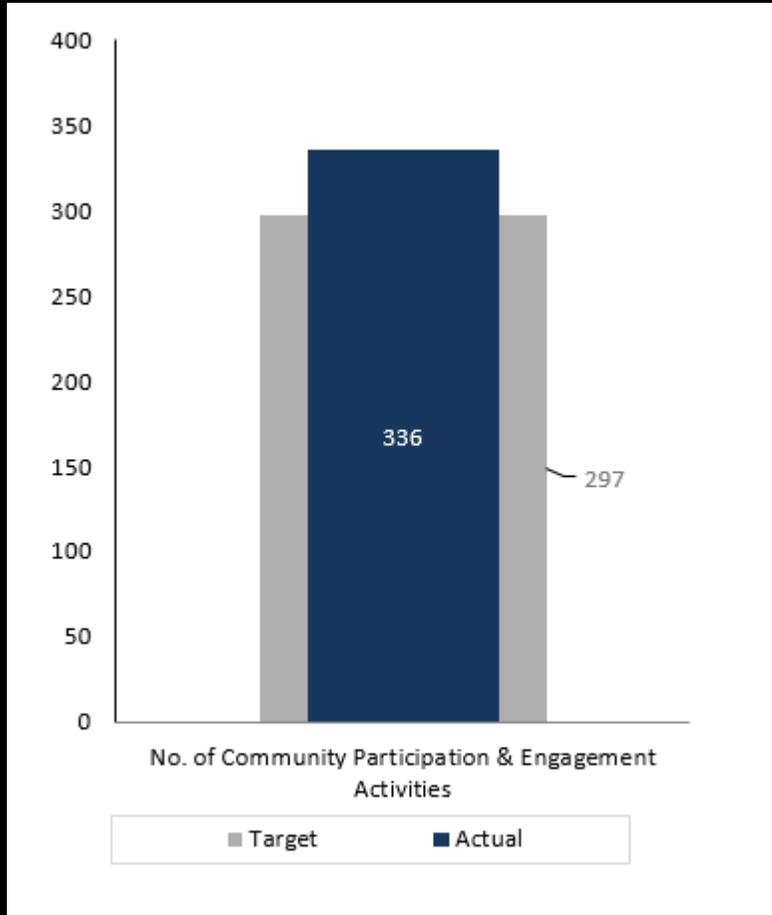
No. of pest species monitoring actions undertaken [?]

3/3

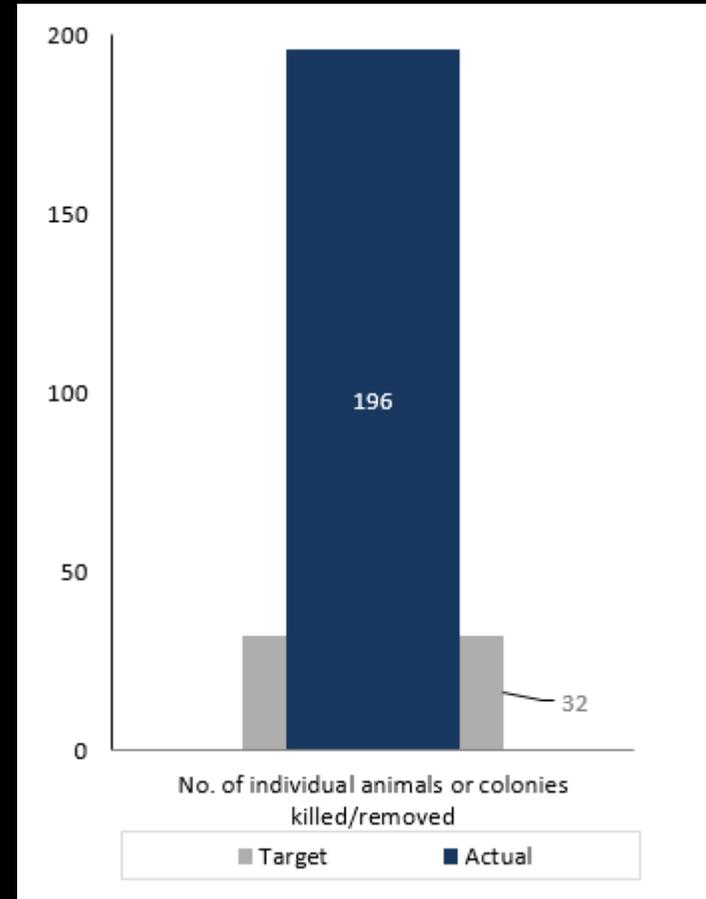
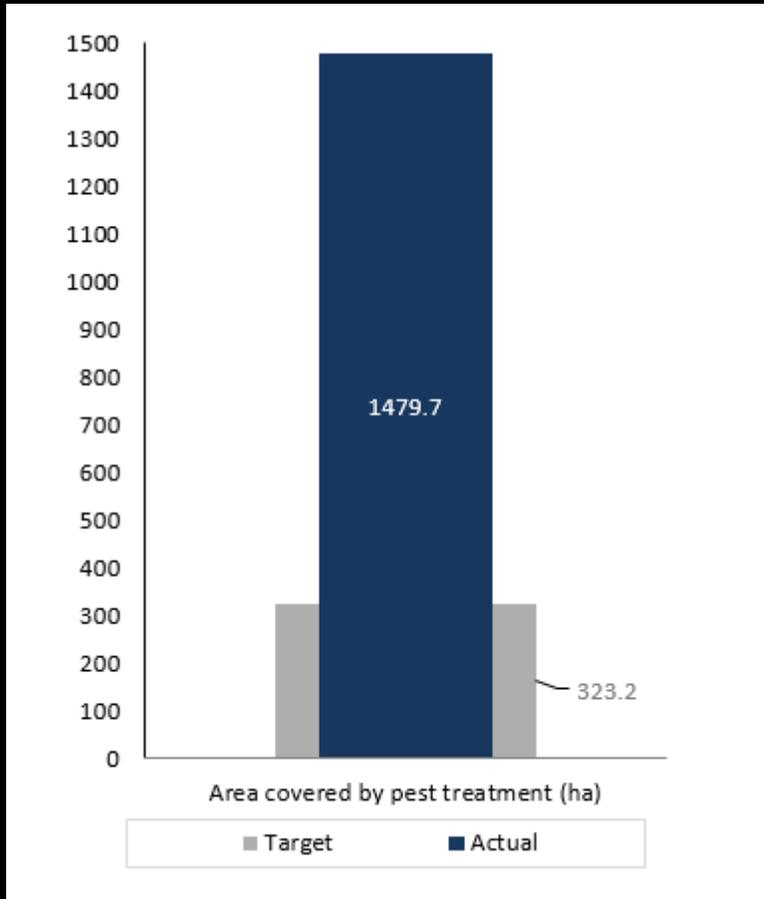
Vegetation Monitoring Results

Total number of revegetation monitoring activities undertaken [?]

3/1

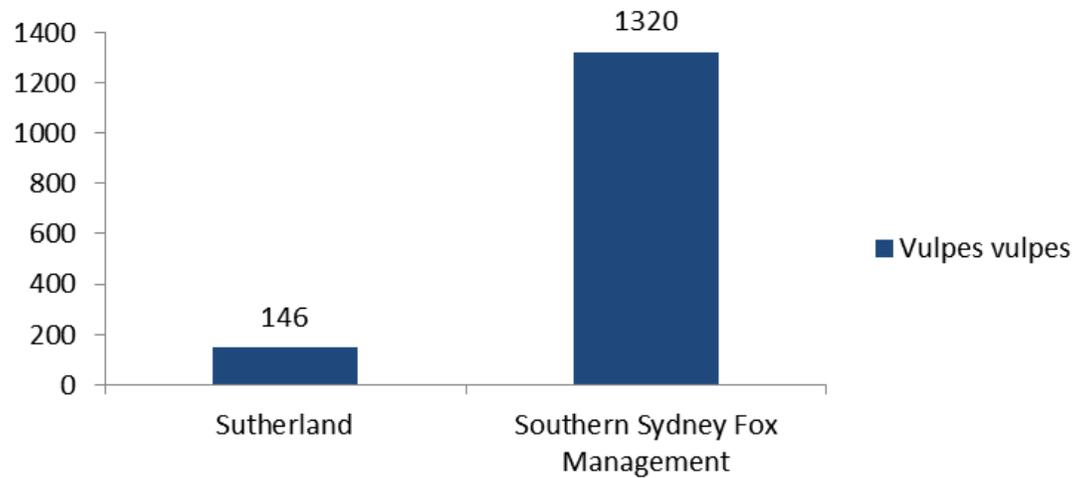


Community participation & engagement activities

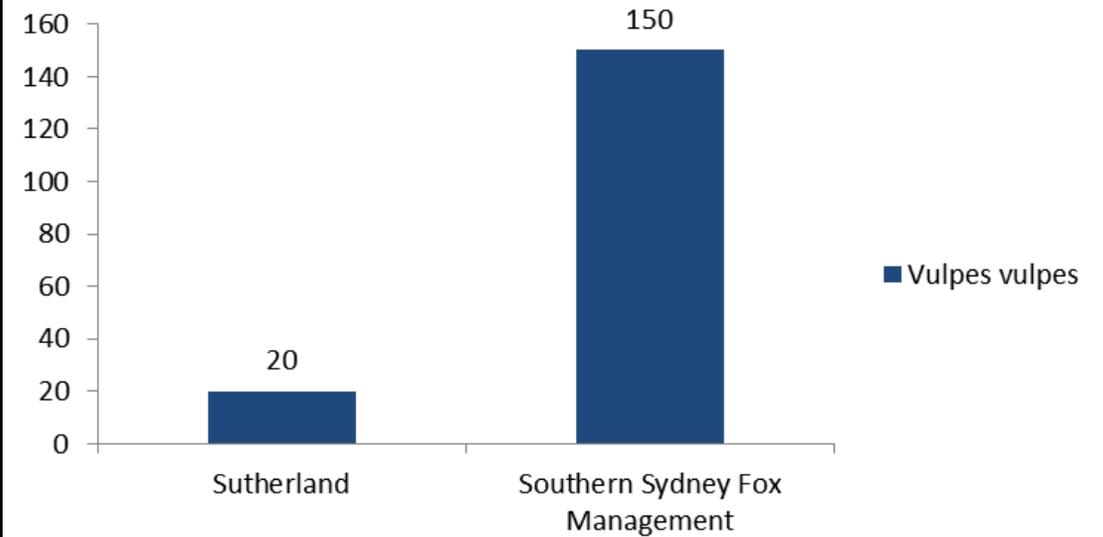


Pest treatment

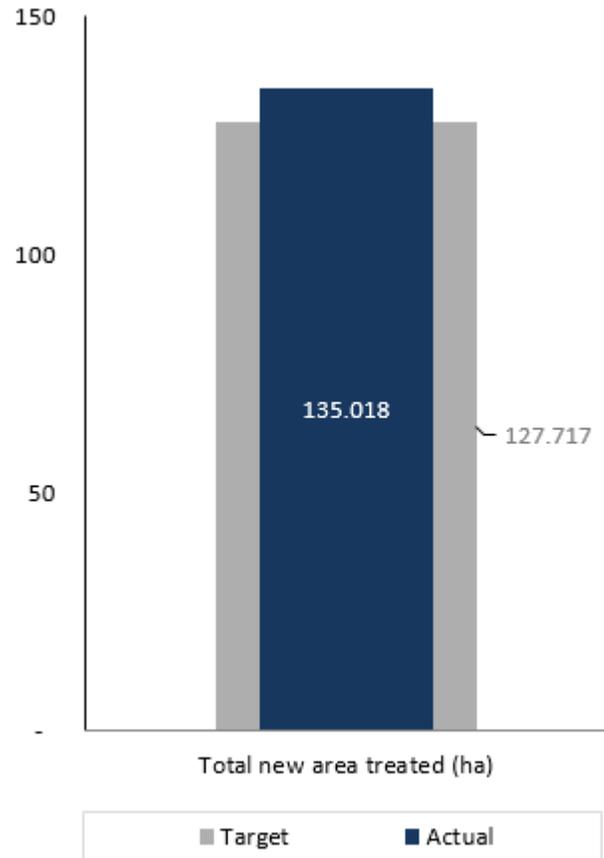
Area (ha) of pest control (*Vulpes vulpes*)



Pests removed (*Vulpes vulpes*)



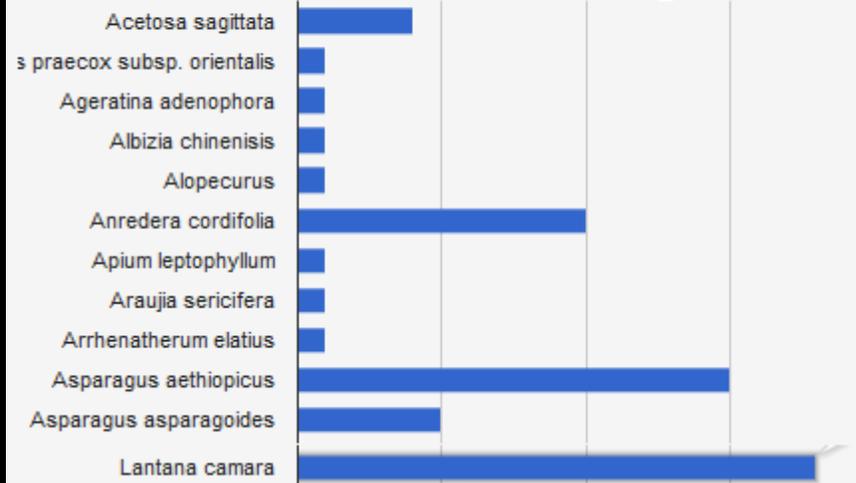
Fox control by project



Weed Treatment Details

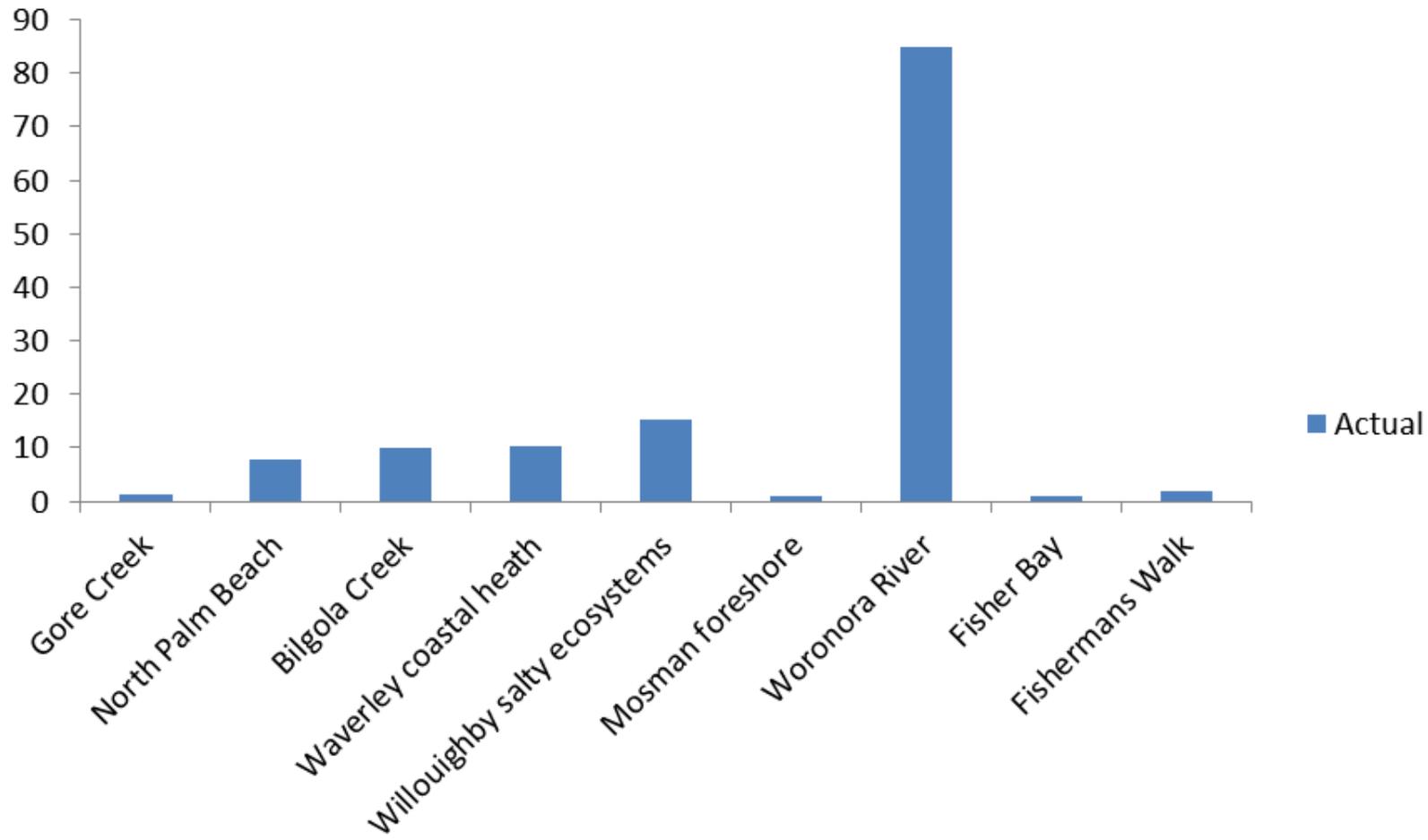
Total No. of weed records reported 187

No. of activities treating weeds by species treated

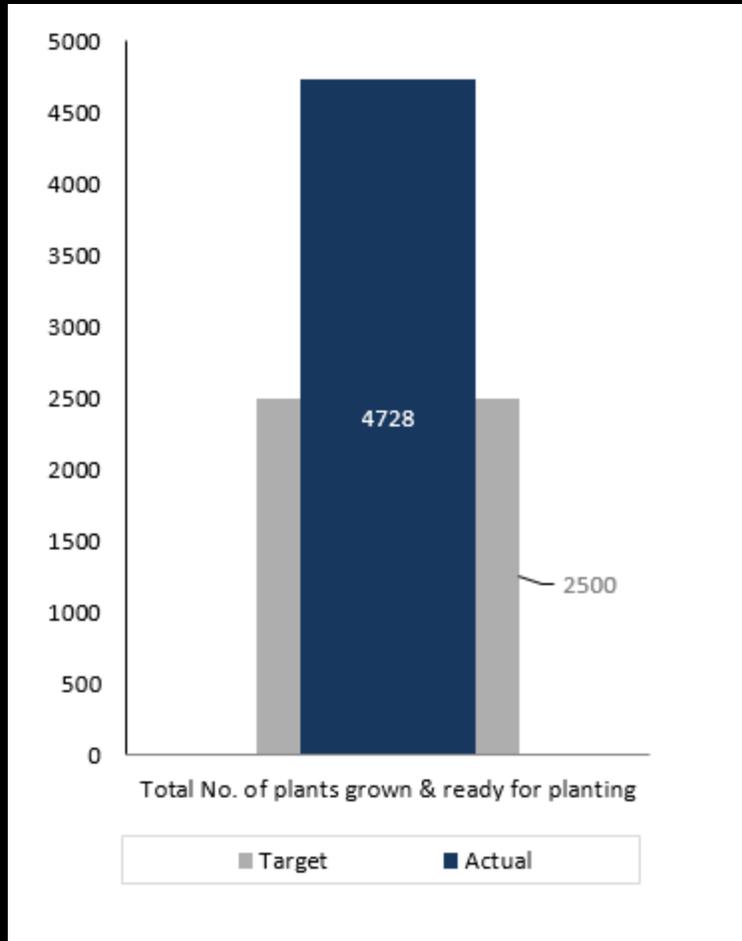


Weed treatment

Weed control (ha) by Project

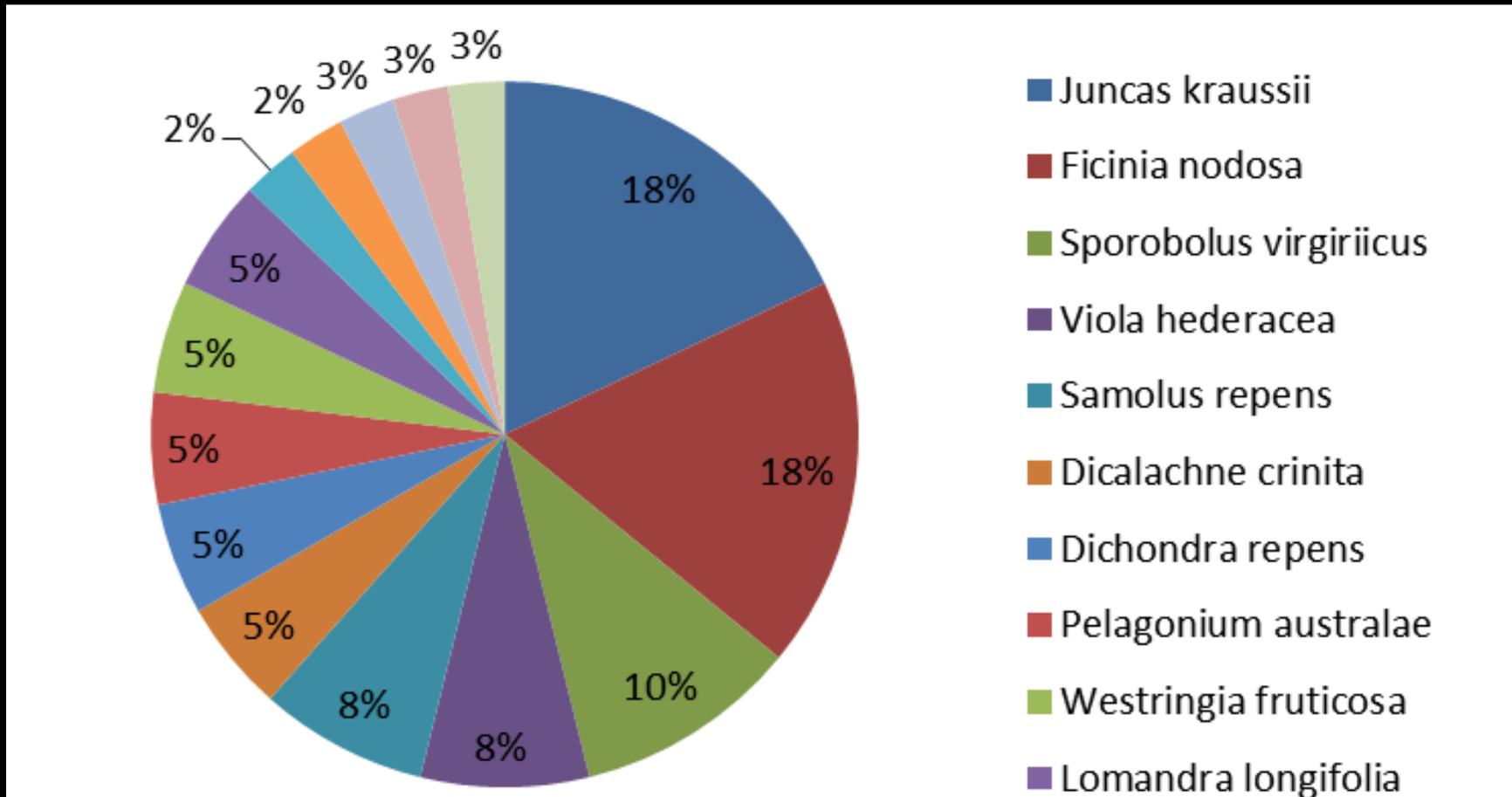


Weed control by project

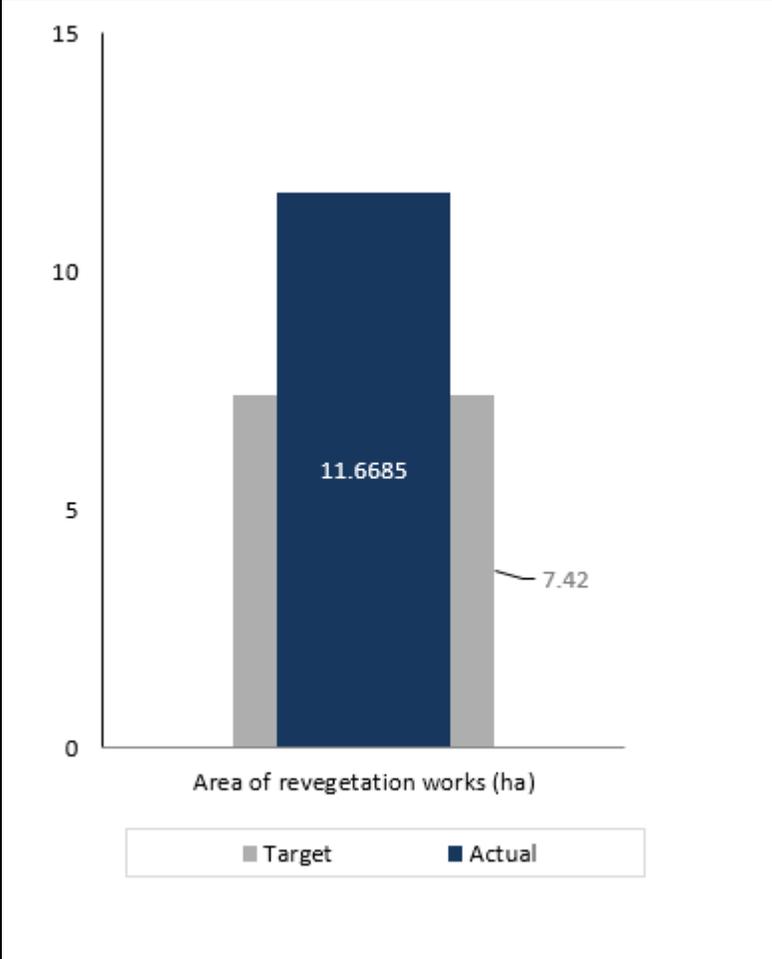


Plant propagation

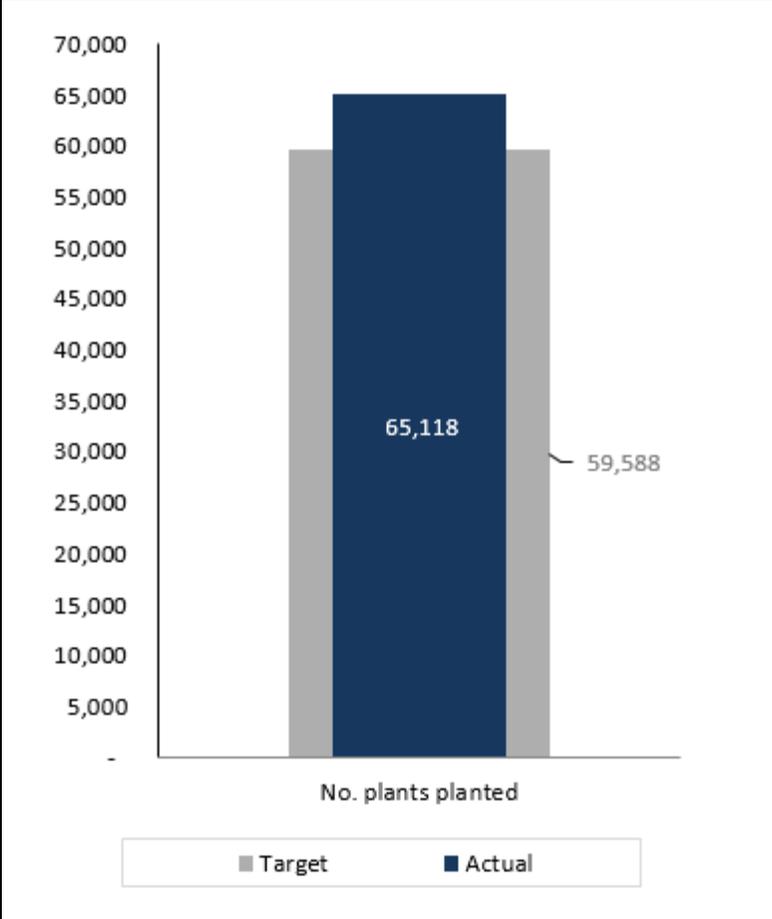
Propagation >100 plants



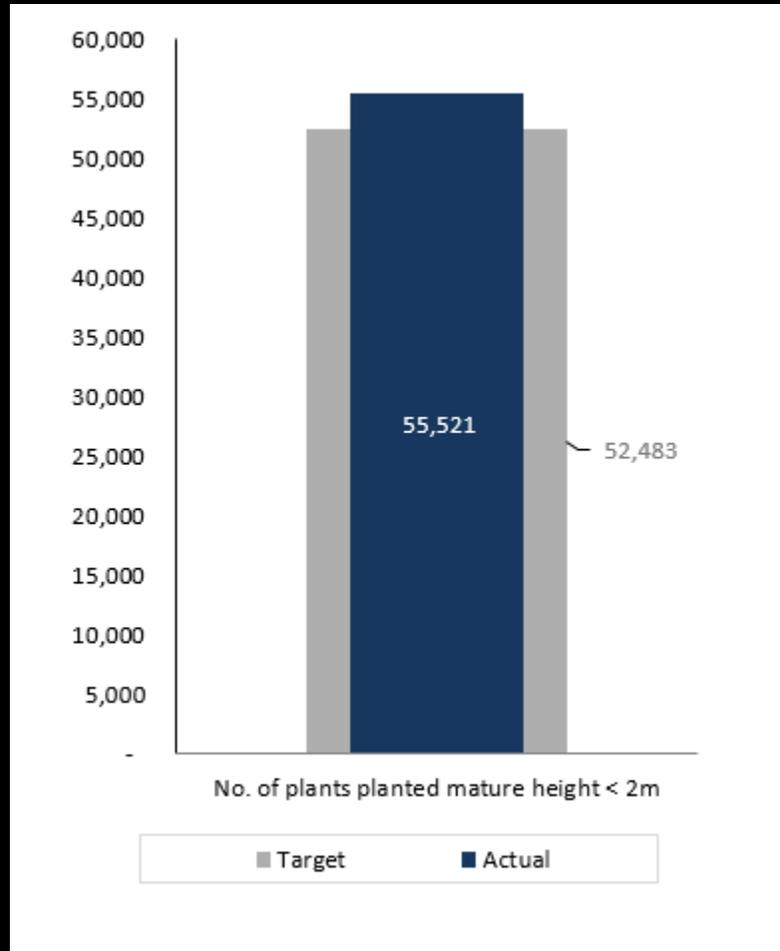
Plant propagation: main species



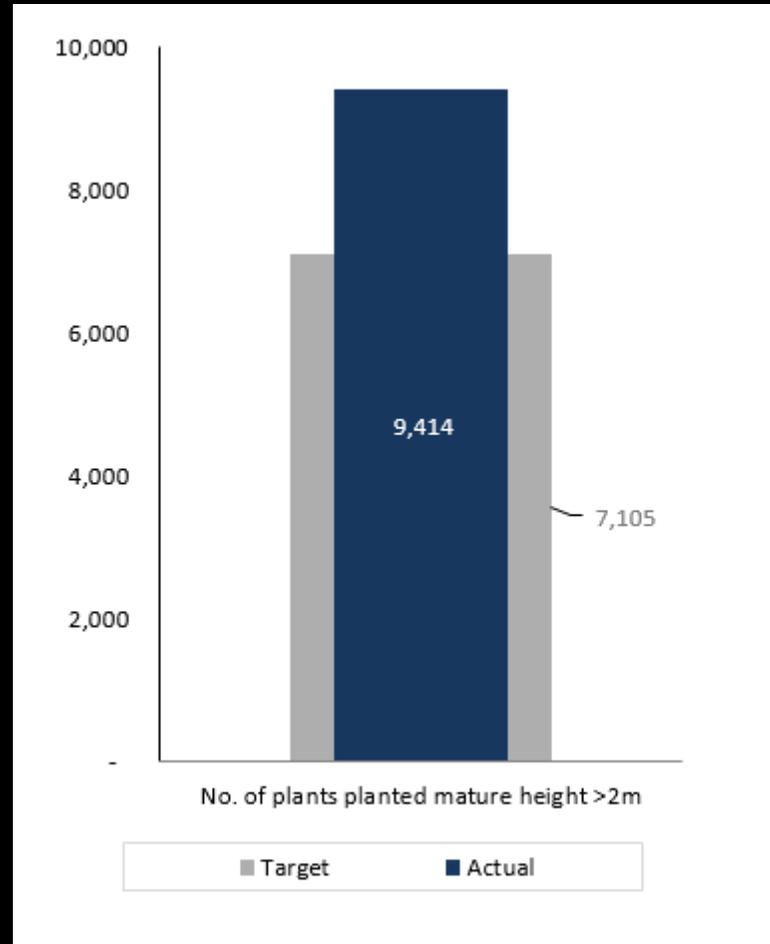
Revegetated area (ha)



Plantings, number of individuals

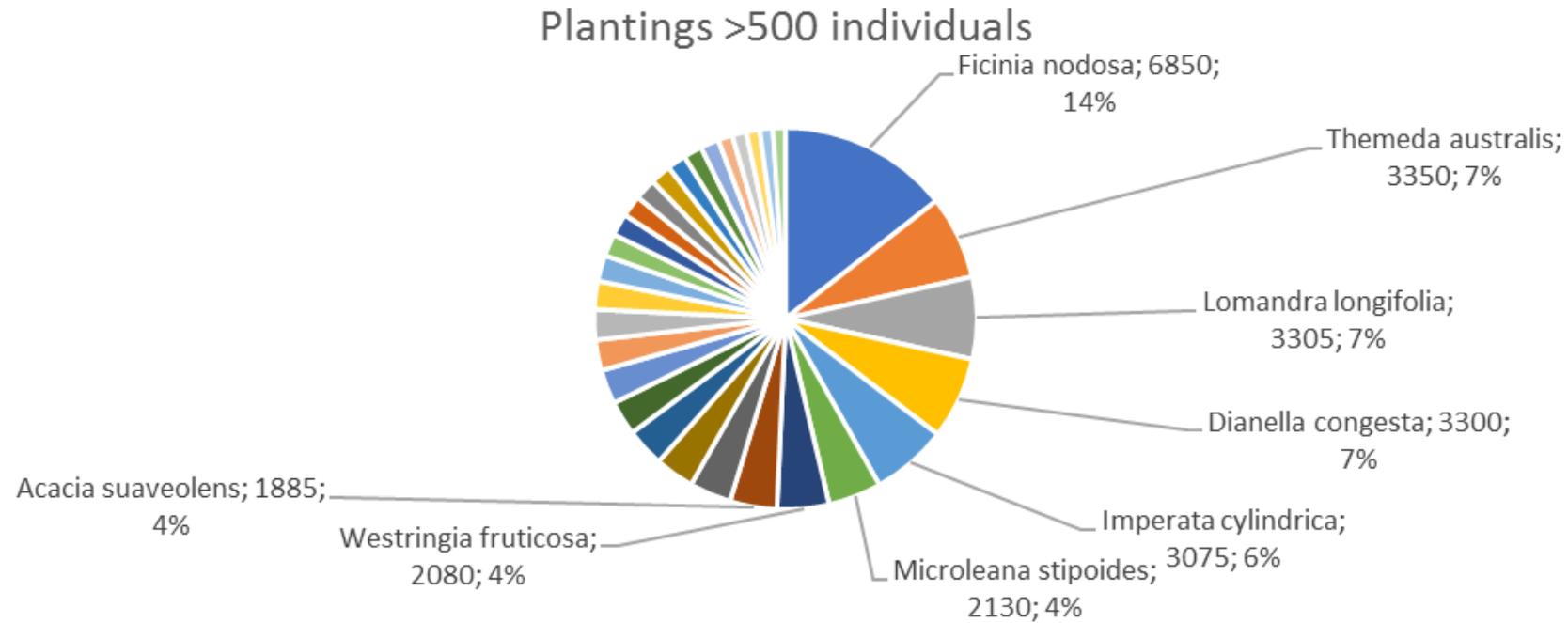


Plants, mature height under 2m



Plants, mature height over 2m

Main species planted

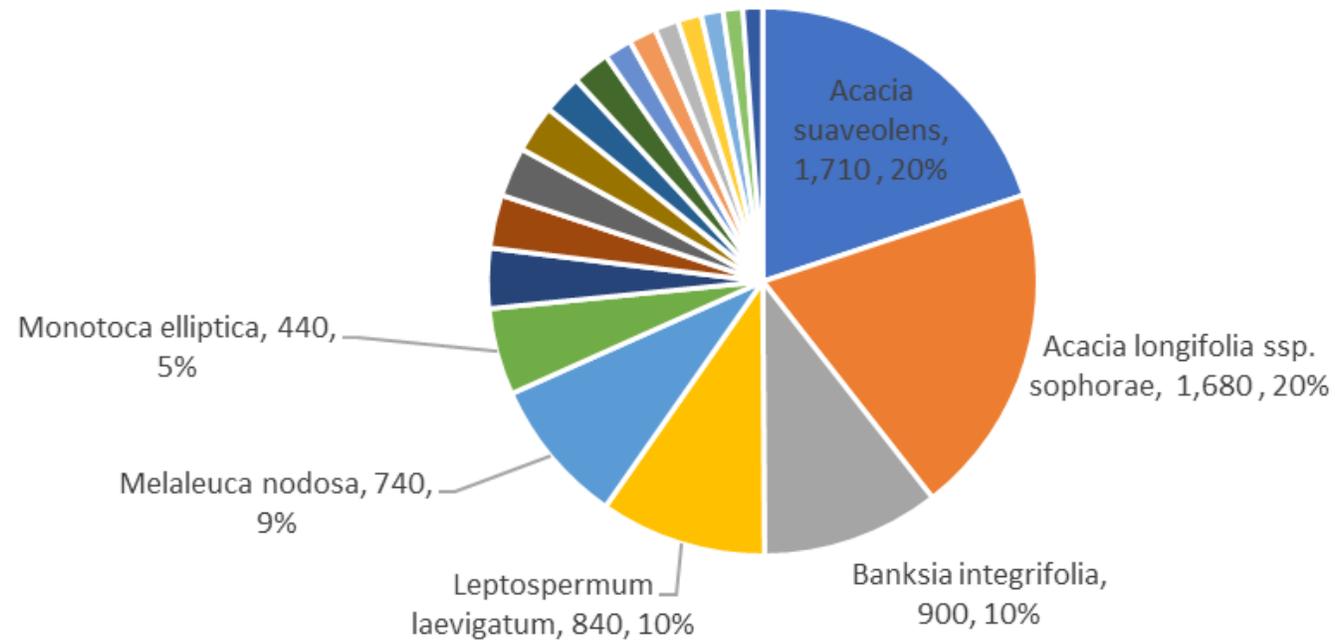


- | | | |
|---------------------------|------------------------|-----------------------------------|
| ■ Ficinia nodosa | ■ Themeda australis | ■ Lomandra longifolia |
| ■ Dianella congesta | ■ Imperata cylindrica | ■ Microleana stipoides |
| ■ Westringia fruticosa | ■ Acacia suaveolens | ■ Acacia longifolia ssp. sophorae |
| ■ Baeckea imbricata | ■ Dianella caerulea | ■ Correa alba |
| ■ Austrodanthonia setacea | ■ Pelargonium australe | ■ Tetragonia tetragonoides |
| ■ Dichelachne crinita | ■ Juncus kraussii | ■ Banksia integrifolia |
| ■ Dichondra repens | ■ Acacia ulicifolia | ■ Viola hederacea |
| ■ Leptospermum laevigatum | ■ Cymbopogon refractus | ■ Dodonaea triquetra |
| ■ Melaleuca nodosa | ■ Hibbertia scandens | ■ Hakea teretifolia |
| ■ Melanthera biflora | ■ Monotoca elliptica | ■ Juncus usitatus |



Main tall species planted

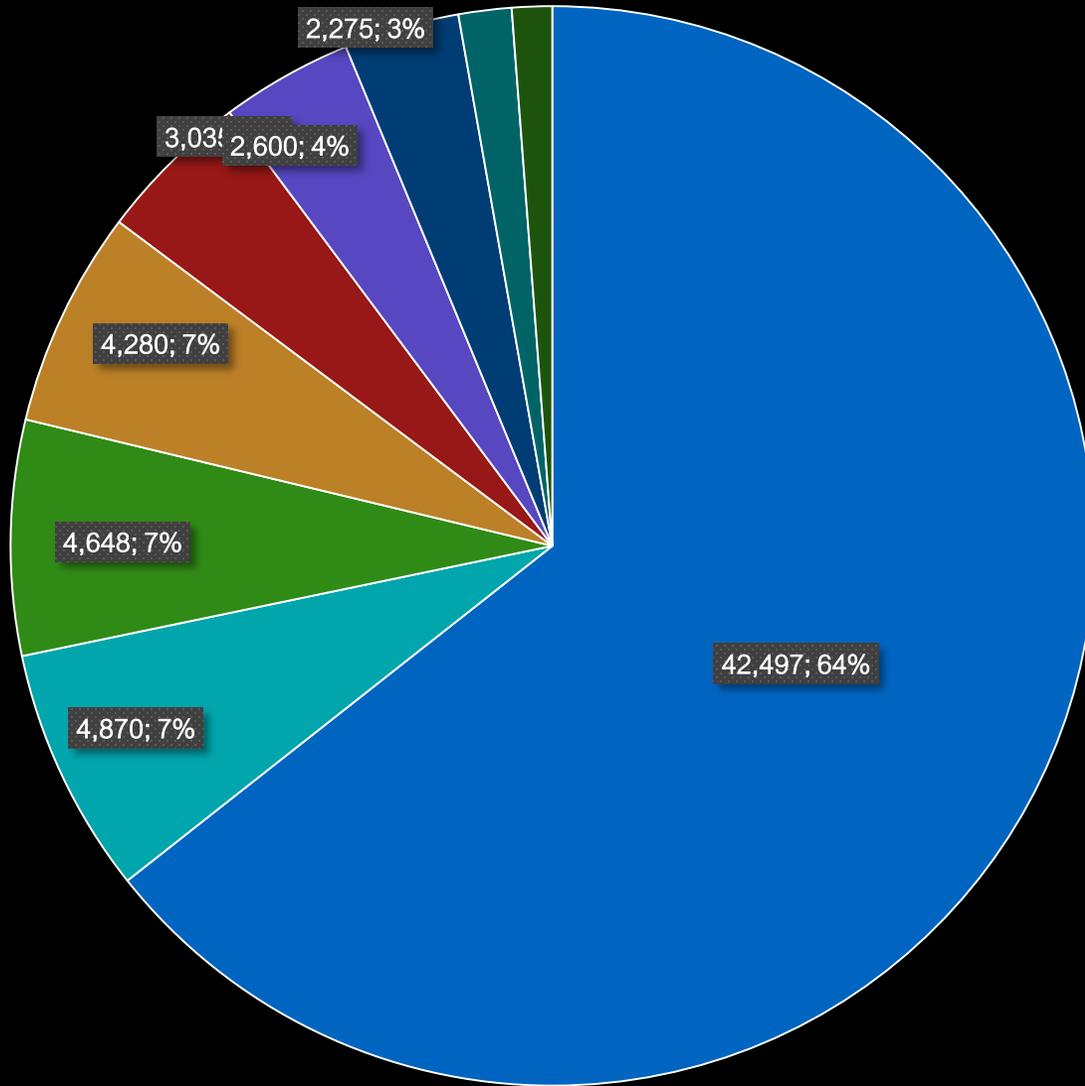
Main plantings >2m



- Acacia suaveolens
- Acacia longifolia ssp. sophorae
- Banksia integrifolia
- Leptospermum laevigatum
- Melaleuca nodosa
- Monotoca elliptica
- Banksia serrata
- Acacia sophorae
- Banksia ericifolia
- Kunzea ambigua
- Myoporum insulare
- Allocasuarina littoralis
- Ghania clarkei
- Syncarpia glomulifera
- Banksia marginata
- Ceratopetalum gummiiferum
- Acacia terminalis
- Breynia oblongifolia

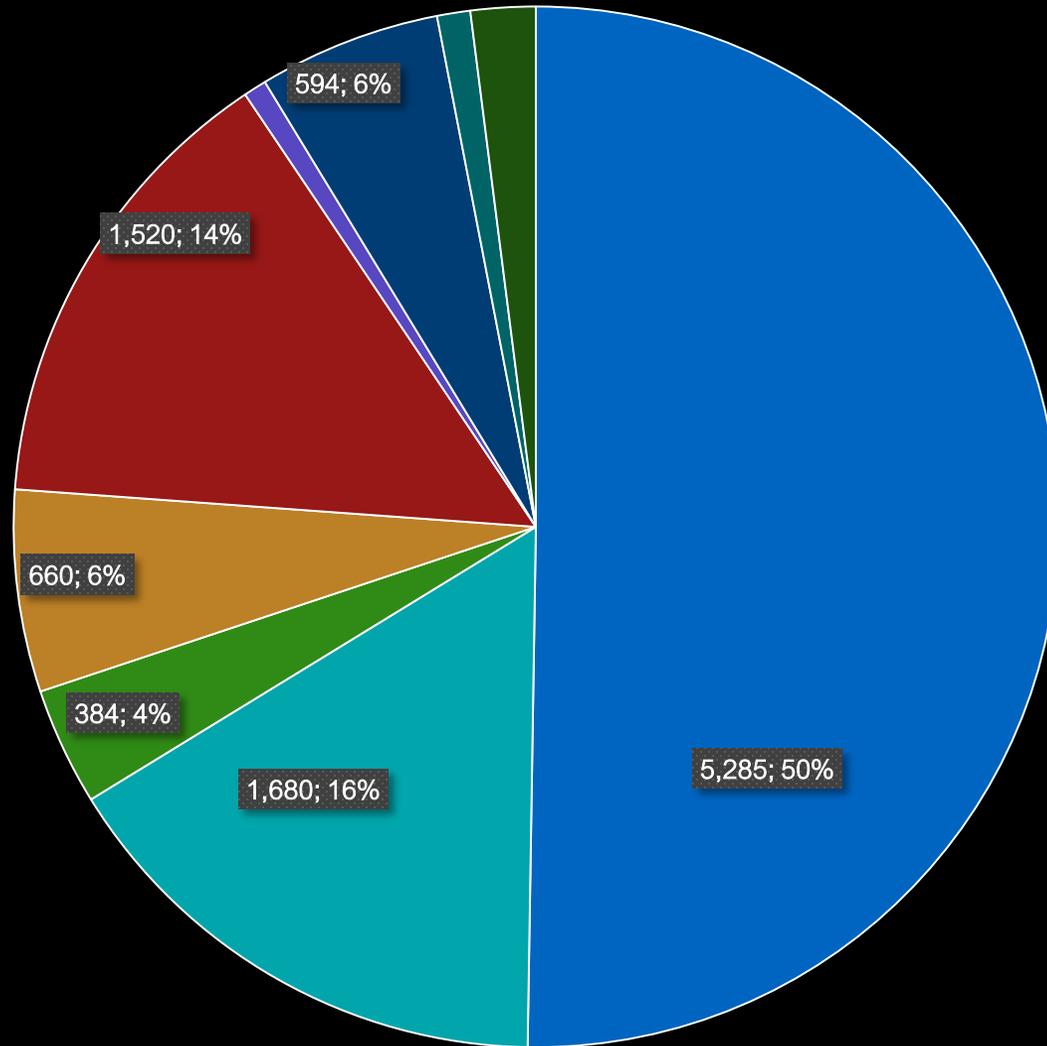


Revegetation by project

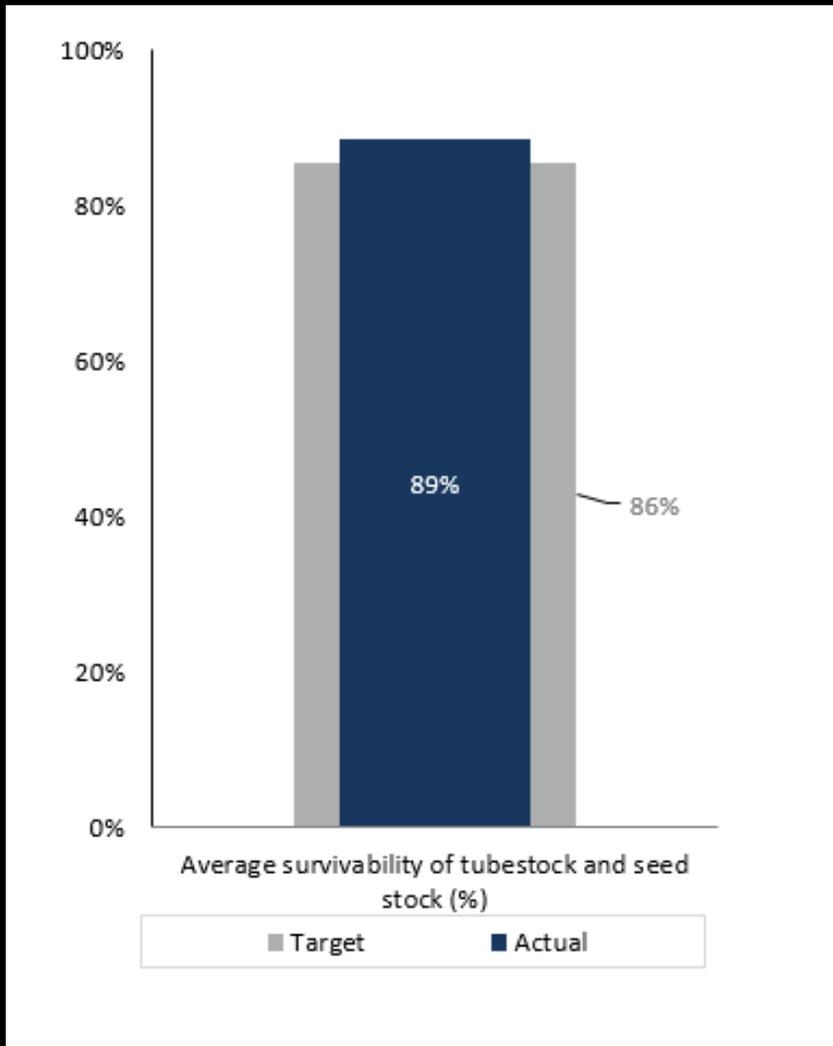


- Waverley coastal heath
- North Palm Beach
- Mosman foreshore
- Fishermans Walk
- Woronora River restoration
- Willoughby salty ecosystems
- Bilgola Creek
- Fisher Bay
- Gore Creek

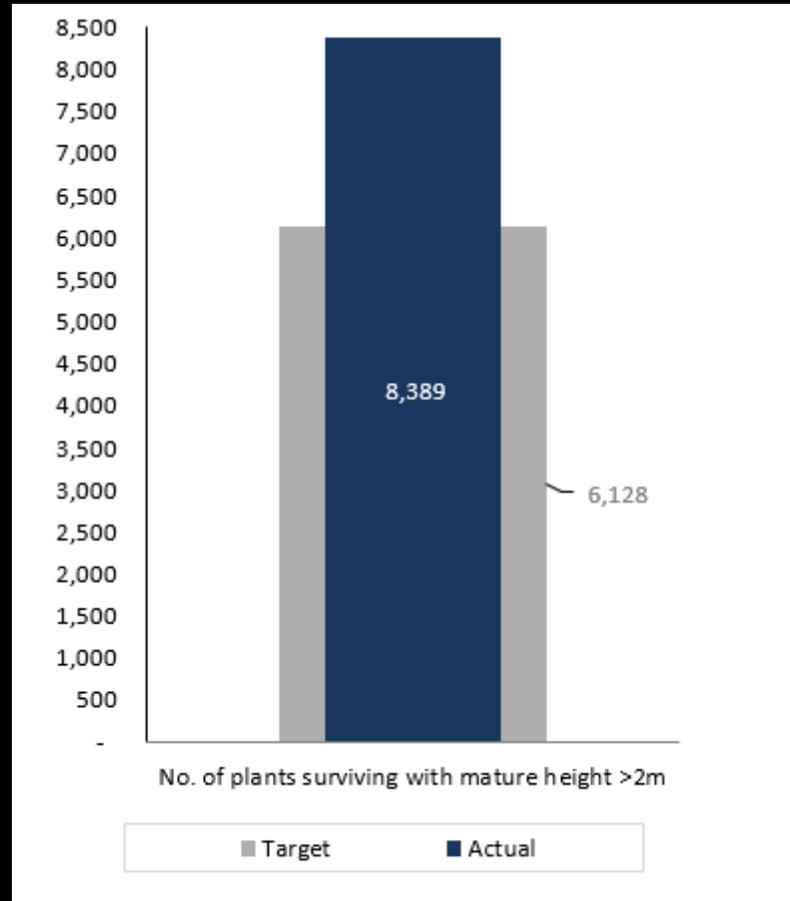
Plantings mature height >2m, by project



- Waverley coastal heath
- North Palm Beach
- Mosman foreshore
- Fishermans Walk
- Woronora River restoration
- Willoughby salty ecosystems
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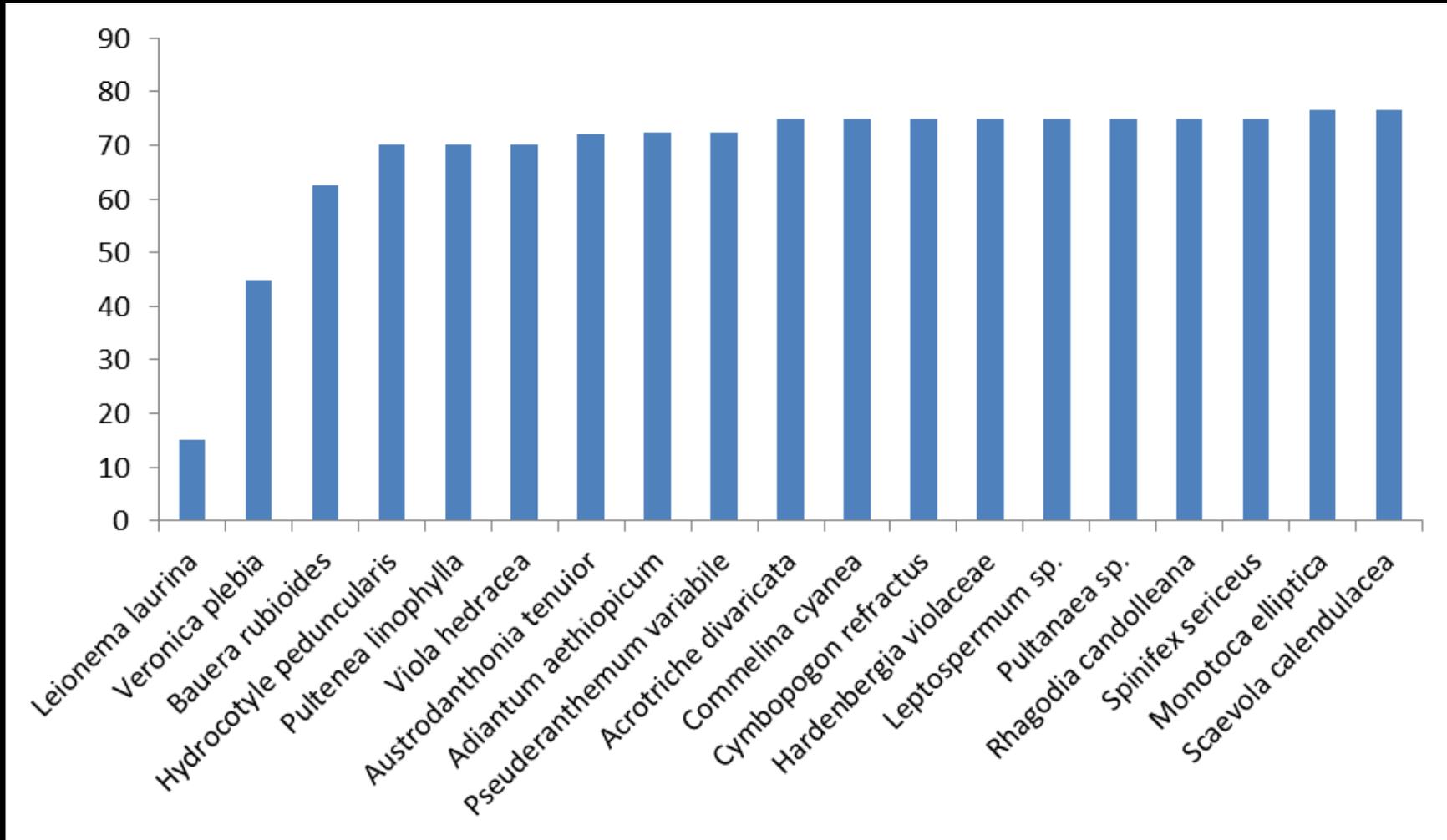


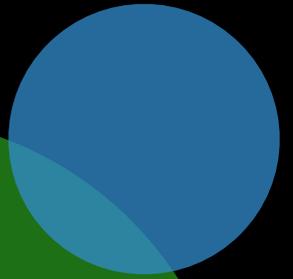
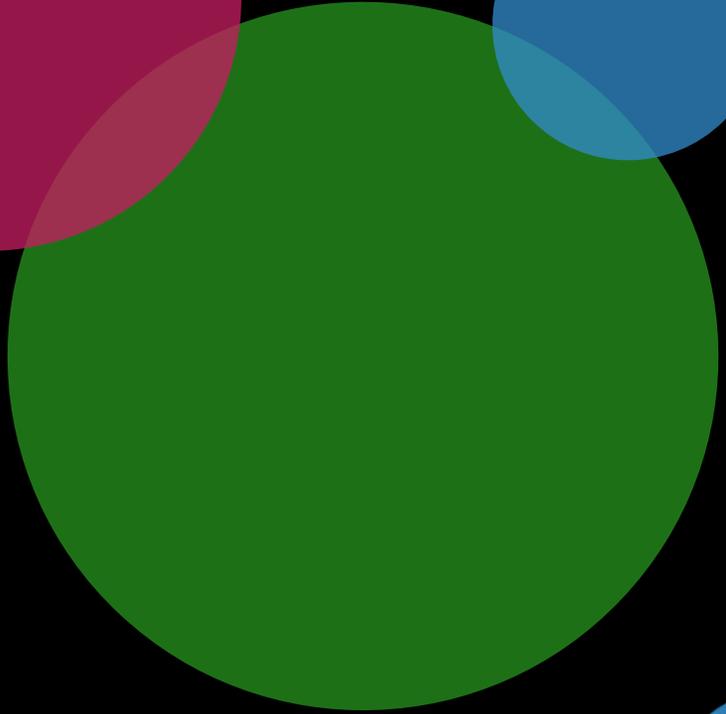
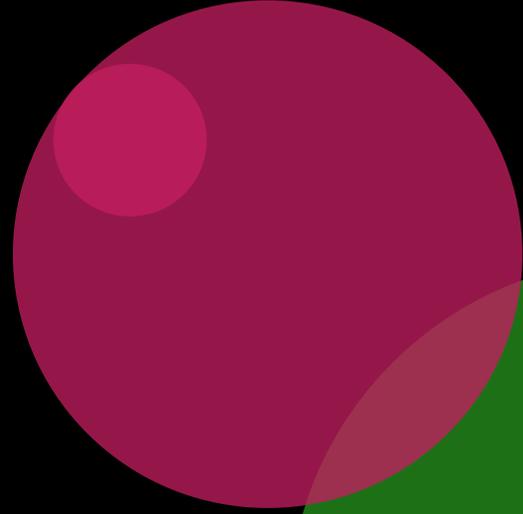
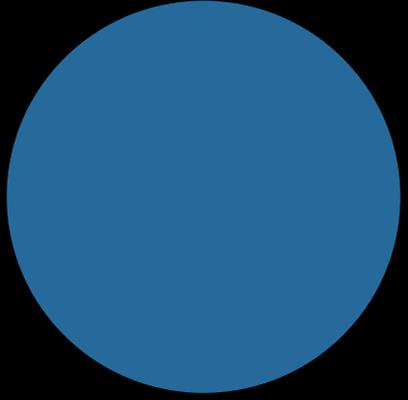
Plant survival rate



Tall plant survival

Plant species with <80% survival





Presenters
Project Outcomes



Connected Corridors for Biodiversity



*Supported by the Sydney Coastal Councils Group with
funding from the Australian Government*



Project aim



Develop tools to facilitate increased habitat connectivity across the project area, in order to increase resilience of biodiversity to climate change and other threats



Project components

1. Habitat corridor map:
 - Collate existing habitat mapping
 - Consolidate mapping into one GIS layer
 - Identify and prioritise opportunities for connectivity across Council boundaries
 - Seek endorsement – Councils and State Govt agencies

2. Guide to regulatory tools, financial incentives and other mechanisms Councils can use to promote biodiversity conservation on privately-owned land:
 - Survey of existing Council tools, incentives and programs
 - Develop guide based on survey results & wider research, to encourage increased up-take and development



- Initiated by Randwick City Council
- Implemented by the Southern Sydney Regional Organisation of Councils (SSROC), in collaboration with Greater Sydney Local Land Services (GS LLS)
- Steering Committee – SSROC, SCCG, LG NSW, RCC
- Expert Panel – OEH, MQU, CRA, CoS
- Other stakeholders
- Project area: 23 Councils (pre-amalgamation) – SSROC, SCCG + Strathfield

Approach – habitat corridor map

- Habitat corridor definition: recognised areas of habitat and adjoining areas through which they can be linked by the establishment of continuous habitat, or 'stepping stone' areas of habitat
- Habitat not limited to native vegetation (includes riparian and coastal zones, rock outcrops, weed infestations etc)
- Corridors to include land that has potential as habitat (eg under-utilised green space, private property including residential backyards)







Photo: Frog & Tadpole Study Group

Methodology – habitat corridor map

Councils with existing habitat corridor mapping

Existing habitat corridor mapping used as basis, because it is:

- based on extensive previous local studies;
- the basis of well-established Council programs; and/or
- has been accepted by Council and the community, and is adopted into Development Control Plans in some cases



Methodology – habitat corridor map cont...

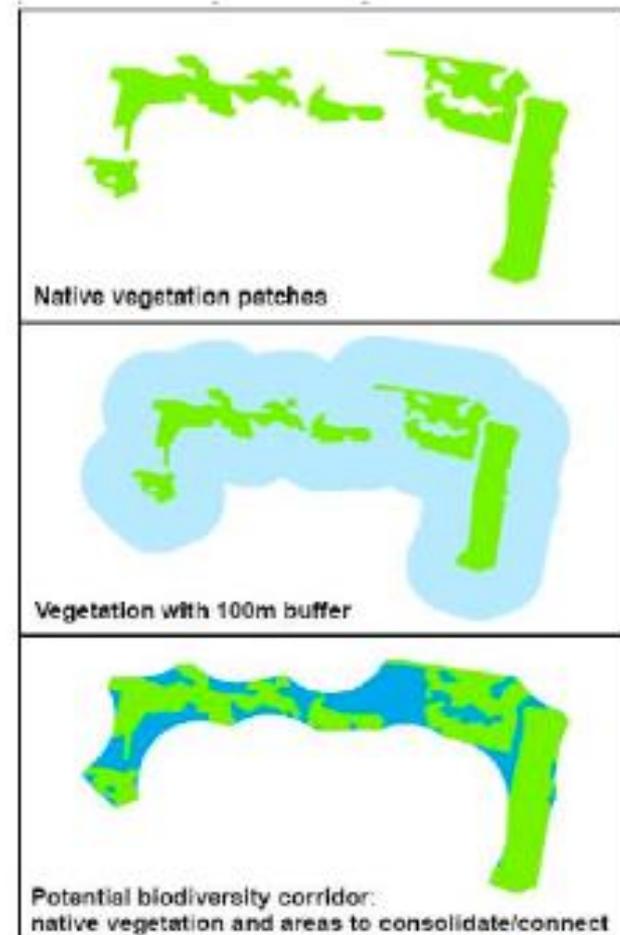
Other Councils

Spatial data for all existing recognised habitat, plus potential habitats used as basis:

- OEH mapping
- Land use zoning from LEPs (eg E1, E2, E3, RE1, RE2)
- Detailed habitat mapping where provided by Councils
- Wetlands and waterways obtained from NSW Govt spatial database

Methodology – habitat corridor map cont...

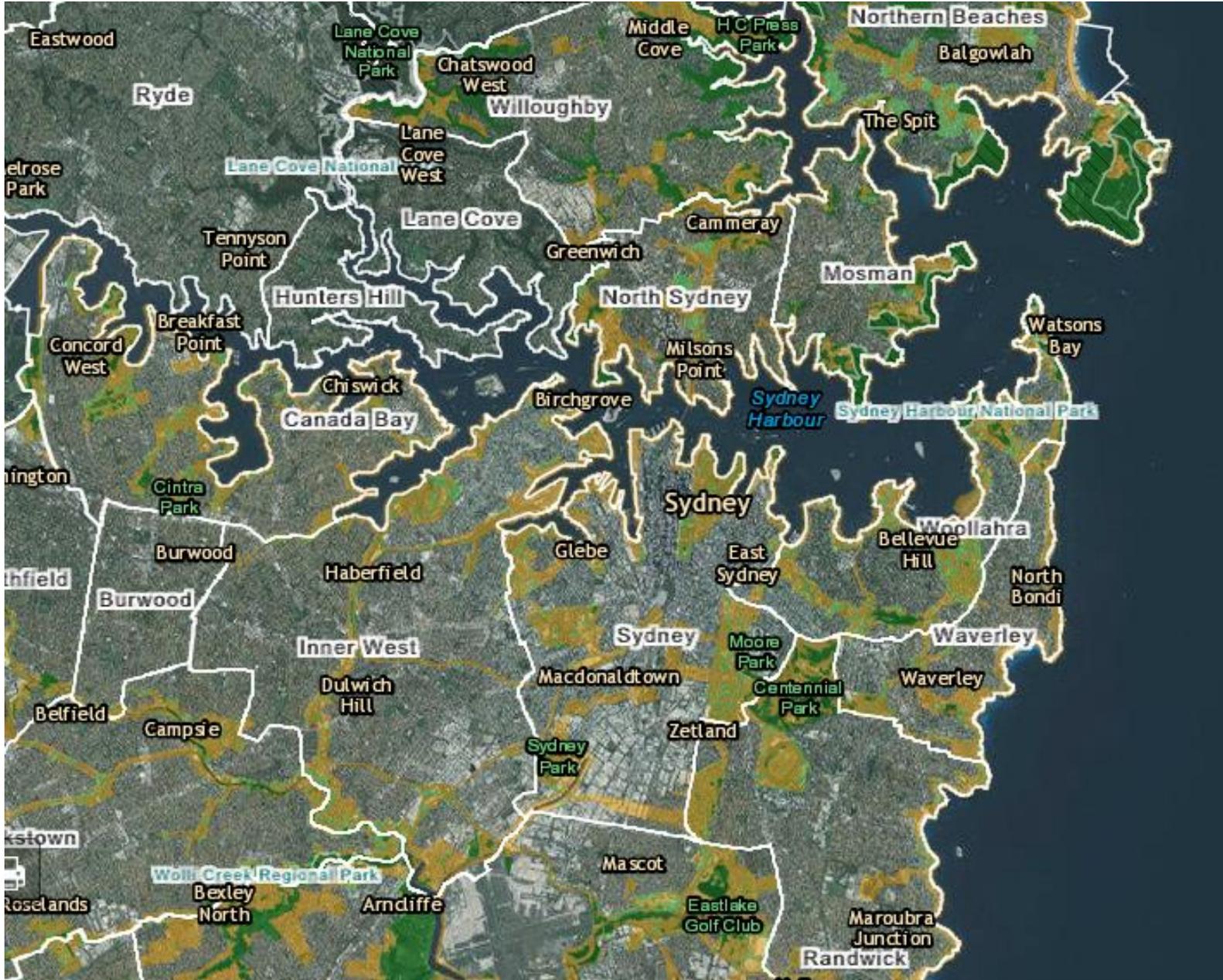
- Spatial data was combined
- Potential linkages identified by:
 - placing 100m buffer around existing and potential habitat
 - clipping resultant buffered polygons back to their outline
 - using 50m either side of railway corridors or roads as a linkage, where gaps remained



Methodology – habitat corridor map cont...

- Draft versions of the map reviewed by Council staff
 - Workshops held to discuss issues with it
- Edits made by Council staff via web-based platform
 - Map also circulated to other land managers, stakeholders for review (incl OEH, GSC)
 - All edits incorporated
 - Corridors then categorised:
 - priority habitats
 - supporting habitats
 - supporting areas

Final map





Final map

- Map hosted on GS LLS website
- Spatial layers provided to Council staff for internal use
- Map to be updated annually by GS LLS for 4 years
- Intended that Councils will:
 - Endorse the map for use as a tool to prioritise on-ground works, community engagement programs etc to improve habitat connectivity
 - Adopt the habitat corridor map into their planning instruments (where this hasn't been done already)
- OEH supportive of the map
- Spatial layers provided to GSC for consideration in District Plans and Green Grid

Guide document

- Recommendations made in relation to:
 - planning controls such as biodiversity provisions of LEPs and DCPs;
 - the development assessment process, incl compliance monitoring
 - financial incentives that Councils can offer, including grants and rates rebates;
 - financial incentives that Councils can promote; and
 - cross-Council partnerships and partnerships with other land managers
- Final document circulated to Council staff, LG NSW, OEH; also available on SSROC website

Connected Corridors for Biodiversity – lessons learned



Mapping:

- Inconsistent approach to mapping across project area perhaps not ideal; resulted in corridors at diff scales in diff LGAs
- Mapping approach also very different to that used by OEH
- Approach nevertheless considered appropriate given:
 - short project timeframe
 - the 4-year review period included in the project scope
 - it enabled previous mapping work undertaken by Councils to be incorporated
 - corridors at diff scales may actually be appropriate given diff resources of diff Councils
- Web-based platform for reviewing mapping = v efficient

Connected Corridors for Biodiversity – lessons learned



Guide document

- Scope was ambitious given project timeframe and resourcing – a more comprehensive guide would be useful
- Key issues identified:
 - Inconsistency in biodiversity provisions of planning instruments between different Councils should be addressed
 - Need for increased Council resources for compliance monitoring re conditions of development consent relating to biodiversity
 - Councils in NSW appear to be lagging behind other states in terms of financial incentives (grants, rates rebates, VCAs) offered for biodiversity conservation on private property
 - Establishment of a working group would be useful to lead implementation of recommendations

Connected Corridors for Biodiversity – lessons learned



Project overall:

- Important that the most relevant Council staff were involved, to maximise likelihood mapping and guide are actually used
- Council staff overall very receptive to the project and most perceived the need for it – ideally would have been involved in scoping it
- Meetings, workshops held as part of the project brought staff together, helped to build relationships & increase potential for collaboration



Connected Corridors for Biodiversity - lessons learned



Project overall cont... :

- Other Councils in Sydney metro area keen for similar mapping – a similar project has been scoped by WSROC and GSLLS
- GSLLS are an excellent resource for Councils in assisting to deliver projects of this nature



Dr Kerrylee Rogers – University of Wollongong

Mangrove and Saltmarsh Threat Analysis Report



Mangrove and Saltmarsh Threat Analysis in the
Sydney Coastal Councils Region

FINAL REPORT: 28 FEBRUARY 2017

PREPARED BY KERRYLEE ROGERS, NEIL SAINTILAN, PETER DAVIES, JEFF KELLEWAY
AND LAURA MOGENSEN

PREPARED FOR SYDNEY COASTAL COUNCILS GROUP



Dr John Martin

Hollows as Homes Program



An aerial photograph of a crowded beach with turquoise water and a purple text overlay. The beach is filled with people, and the water is clear and green. The text overlay is a dark purple rectangle containing the council's name and website.

NORTHERN BEACHES COUNCIL

northernbeaches.nsw.gov.au

DEE WHY LAGOON BIODIVERSITY RESTORATION PROJECT



This project included the following;

- Restoration of saltmarsh
- Vegetation condition mapping
- Weed control
- Native seed bank developed
- Fauna surveying
- Vertebrate pest animal control
- Community engagement

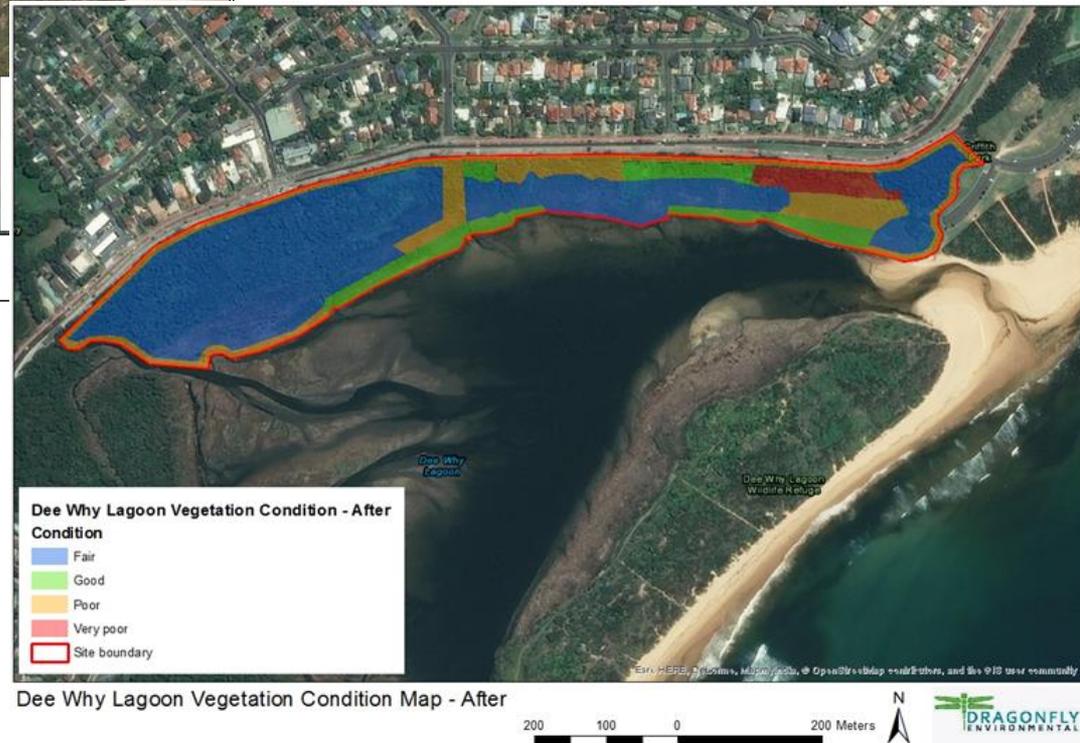
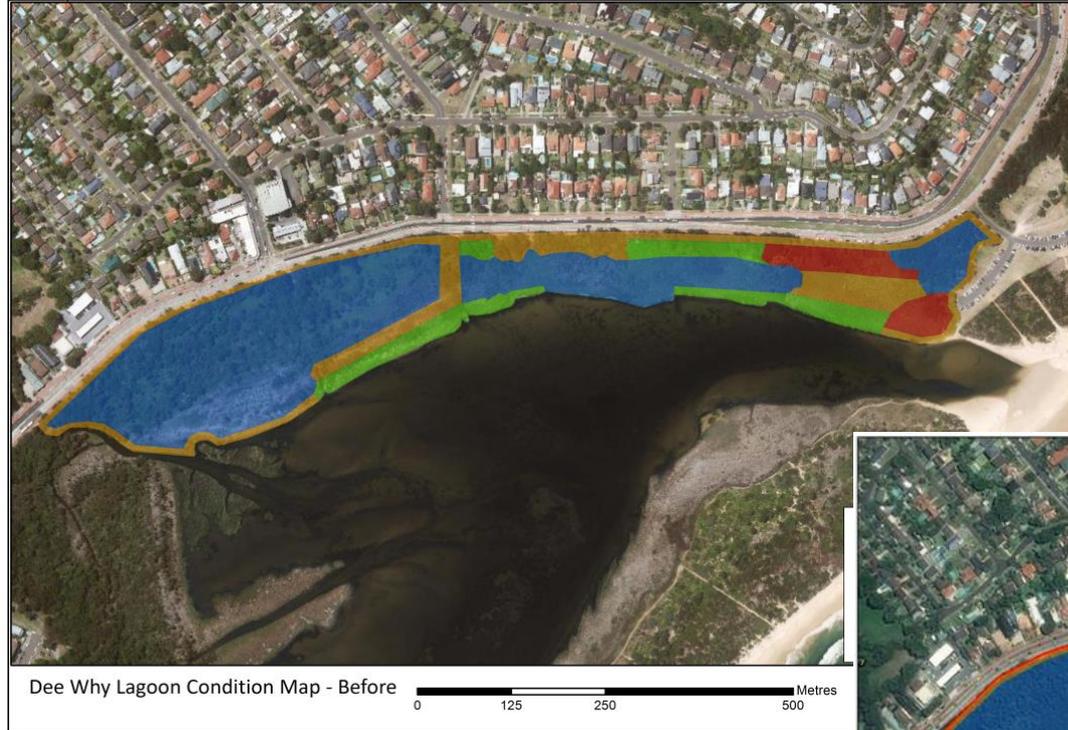
Saltmarsh Restoration

Coastal Dune Swamp and Saltmarsh
inundated before lagoon opening



Dried algae covering the saltmarsh occurred after opening the lagoon following closure for a couple of years, it created a hot house effect over the vegetation.

Vegetation Condition Mapping



Weed Control



Key

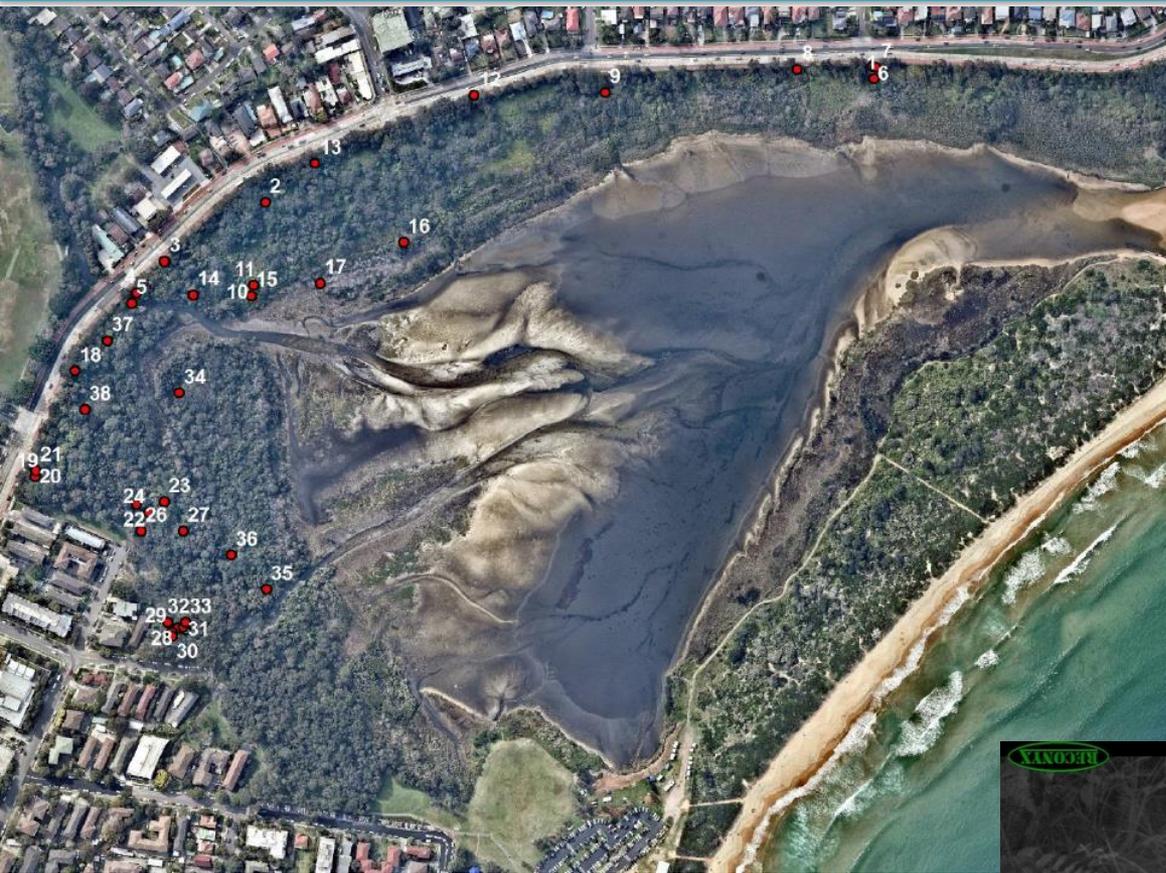
- Primary
- Maintenance
- spraying
- Thermal Weeding
- *Volunteer Planting
- Where mature *Chrysanthemoides monilifera* was treated



Native Seed Bank Developed



Fauna Surveys



Vertebrate Pest Animal Control



Community Engagement

Bird Survey Workshop



Warringah Council presents

BIRD SURVEY TRAINING WORKSHOP

Sat 27 Feb, 9am - 2pm

Learn about popular bird science,
biology, identification and
conservation work

Long Reef Golf Club
Bookings 9942 2913



Government and Community partners

Nature Watch Week



Warringah Council's Hilltop to Headland Environmental series presents

NATURE WATCH WEEK

Know who you're sharing your neighbourhood with by taking part in the wildlife survey throughout the week 27 Feb - 4 Mar

WARRINGAH.NSW.GOV.AU



Dee Why Fauna Fair



Northern Beaches Council Hilltop to Headland presents

FAUNA FAIR

Sunday 11 September, 10am - 3pm

James Meehan Reserve, Dee Why





NORTHERN BEACHES
COUNCIL

Corporate Day's

Natural Environment Team, Northern
Beaches Council planting day & rubbish
clean up



Deloitte planting day



NORTHERN BEACHES
COUNCIL

Lessons Learnt

- We need to think of other ways to engage the land owners around the project site to come on board with habitat gardens and weed removal?
- Youth to participation in community events?
- Timelines to contractors and ecologists undertaking research as part of the project.



What's next

- National Tree Day will be held at Dee Why Lagoon in July 2017,
- Council will continue to invest in restoration of the lagoon system,
- National Cat Tracker.





Thank you

Lessons from Living shorelines - A Sydney Salty Community program

February 2017



Marine NRM- scaling up marine restoration efforts requires



1. Communication of the **business case**
2. Building **confidence**, awareness and capacity that degraded marine habitats can be repaired
3. Developing the **policy** framework
4. Building skills and **experience** in restoration practitioners



Oyster shell (aquaculture & post-harvest)



Biosecurity protocols



Seeded with oyster spat



Biodegradable mesh pillows



Arranged on site (volunteers)



Reef solidifies with spat growth



Mesh pillows degrade over time

Concrete success

- 1, clear approval pathway
- 2, legacy- 9 demonstration trial sites funded
- 3, The Star Casino, Sydney Fish Market tenants, UNSW Water research labs, Australian Shellfish Network, GBRMPA policy statement habitat
- 4, commercial Industry buy in and interest
- 5, proof of demand

Less measurable outcomes

- 1, The rehabilitation sector questioning use of plastic polymers
- 2, Suppliers of rehab. products seeking alternatives
- 3, Oyster farmers and processors thinking differently about waste product



Challenges

- 1, Appropriate approval pathway
- 2, Biosecurity
- 3, Transport and handling
- 4, Bag longevity – treatments and supplier
- 5, Multi disciplinary involvement and skillsets
- 6, Spat settlement and recruitment
- 7, Cost overrun





- Macquarie, Western Sydney and UNSW Universities
- Port Stephens & Shoalhaven oyster farmers
- Sydney Fish Market
- The Star Entertainment Group
- Price and Speed Containers

This project is supported by Sydney Coastal Councils Group and Greater Sydney Local Land Services through funding from the Australian and NSW Governments



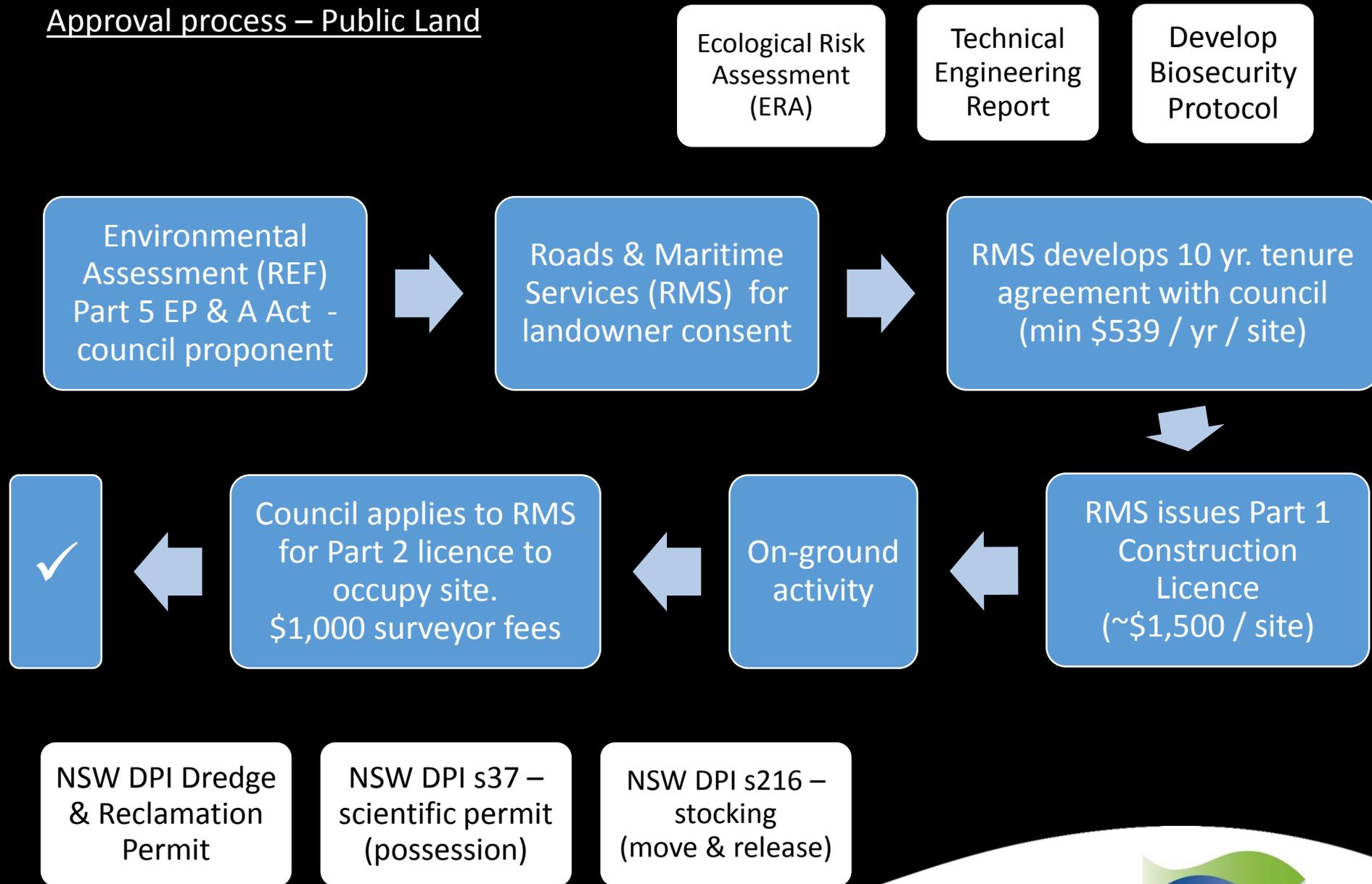
Australian Government



Local Land Services
Greater Sydney



Approval process – Public Land



Film

- <https://www.youtube.com/watch?v=mD1TprbaQCk>



Southern Sydney Regional Fox Grant

ACHIEVEMENTS AND LESSONS LEARNT

Development of Southern Sydney Regional Fox Project: Participants

COUNCILS

- ▶ Inner West – Ashfield, Leichhardt, Marrickville
- ▶ City of Canterbury – Bankstown
- ▶ Strathfield
- ▶ Randwick
- ▶ Waverley
- ▶ Georges River – Kogarah and Hurstville
- ▶ Bayside – Rockdale and Botany
- ▶ Cumberland – Auburn
- ▶ Sutherland
- ▶ City of Sydney
- ▶ Canada Bay

MONITORING PARTNER

- ▶ Royal Botanic Garden

Why fox control



Regional Perspective

- Identified as a threat to biodiversity in the southern Sydney region
- Number of Councils and land managers in the region already undertaking stand alone fox control and /or education
- Community interest in fox control
- Councils seeking further information on best approach
- Number of threatened species impacted or potentially impacted by foxes including:
 - Pied oyster catcher,
 - Little tern,
 - Green & golden bell frog,
 - Green turtle,
 - Giant burrowing frog and
 - Long-nosed bandicoot.

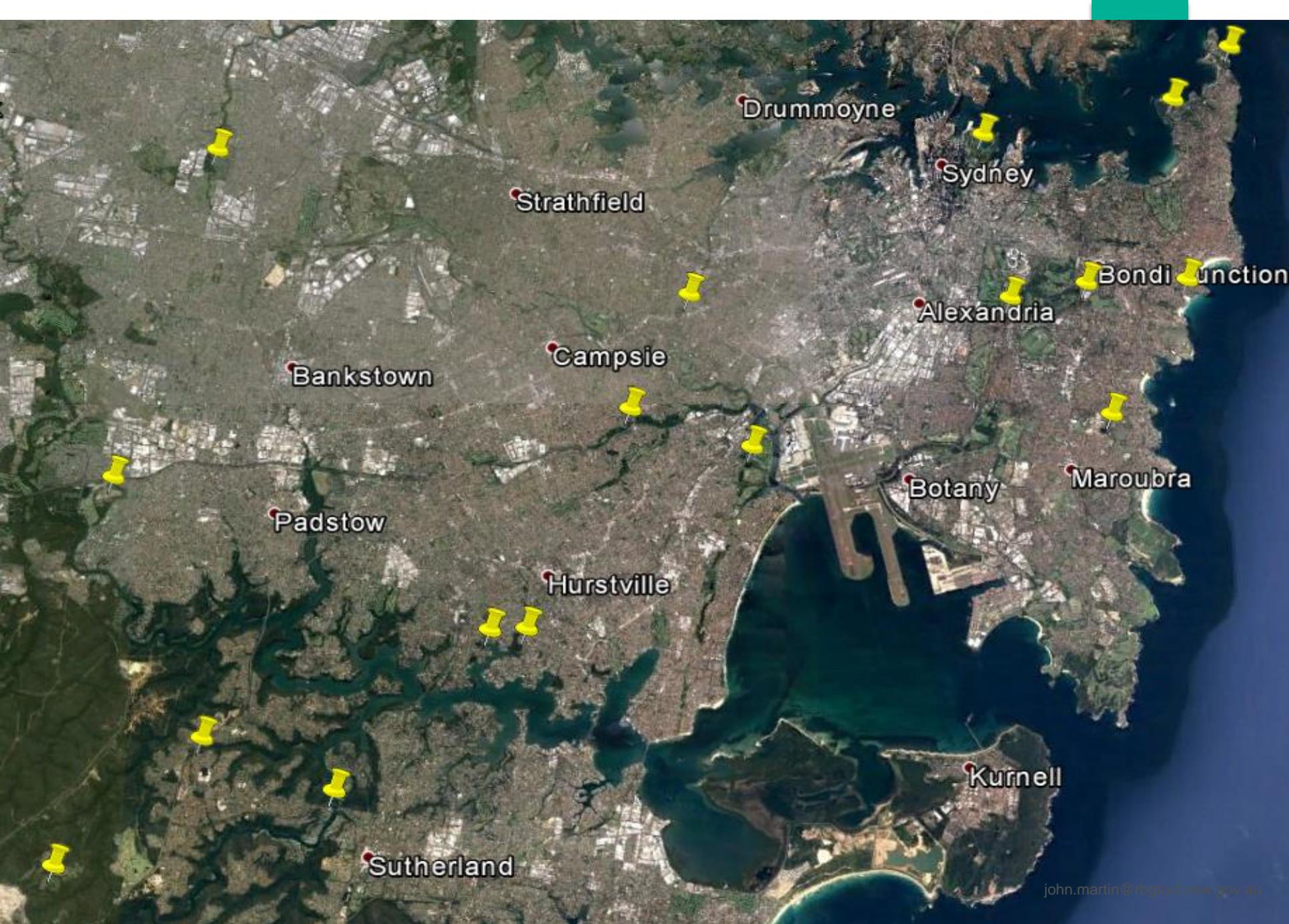
Other stakeholders

► Government Agencies/Major Landowners

- Sydney Trains
- Local Land Services
- Centennial Parklands
- Sydney Ports,
- Roads and Maritime Service
- Sydney Airport
- Sydney Olympic Park
- Local Environmental Groups
- Urban Feral Animal Action Group,
- Rookwood Cemetery,
- National Parks and Wildlife Service
- Sydney Water
- NSW Dept of Primary Industry
- University of Sydney
- WestConnex
- Western Sydney University
- Invasive Animals CRC

Monitoring

- ▶ Consists of:
 - ▶ Motion activated cameras in nature reserves
 - ▶ Analysis of stomach and scat content
 - ▶ GPS collaring of foxes to track movement
- ▶ Three year project led by Royal Botanic Garden in collaboration with Western Sydney University and the University of Sydney



Drummoigne

Sydney

Strathfield

Alexandria

Bondi Junction

Bankstown

Campsie

Botany

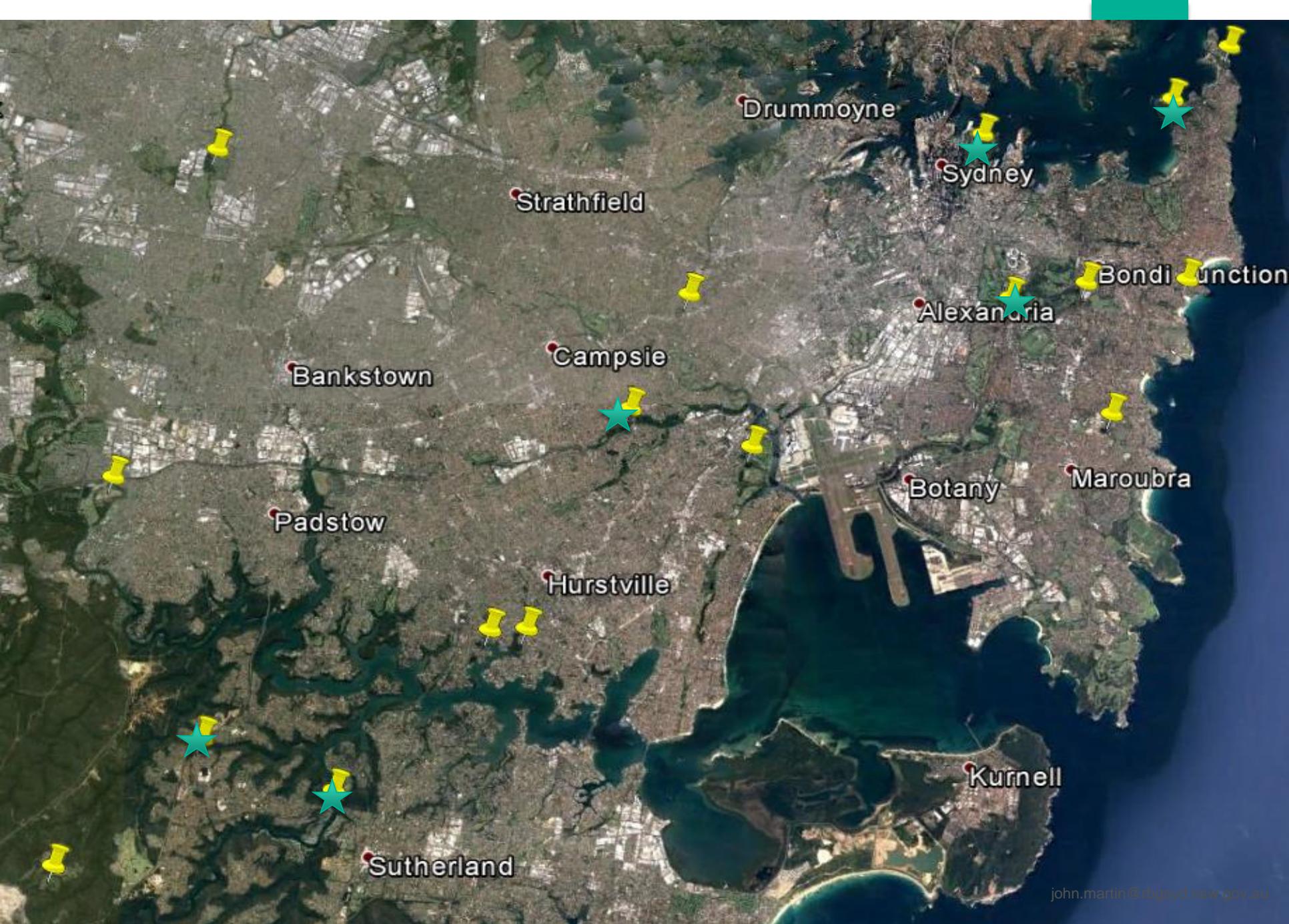
Maroubra

Padstow

Hurstville

Kurnell

Sutherland



Drummoyne

Sydney

Strathfield

Alexandria

Bondi Junction

Bankstown

Campsie

Botany

Maroubra

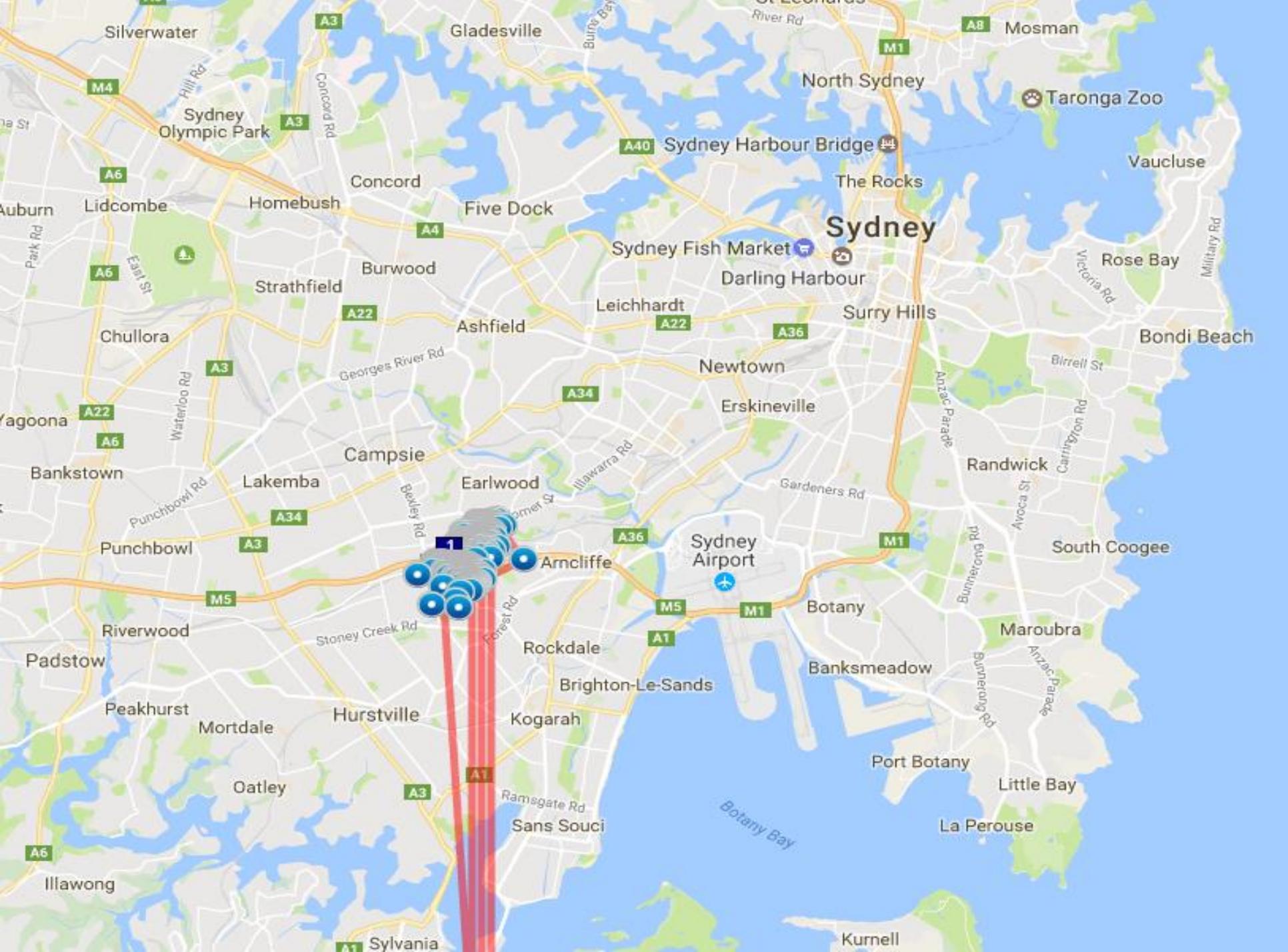
Padstow

Hurstville

Kurnell

Sutherland





Sydney

Silverwater

Gladesville

North Sydney

Mosman

Taronga Zoo

Sydney Olympic Park

Sydney Harbour Bridge

Vaucluse

M4

A3

M1

A8

A6

Concord

Five Dock

The Rocks

Auburn

Lidcombe

Homebush

Burwood

Sydney Fish Market

Darling Harbour

Rose Bay

A6

Strathfield

Ashfield

Leichhardt

Surry Hills

Victoria Rd

Military Rd

Chullora

Georges River Rd

Newtown

Erskineville

Bondi Beach

A22

Campsie

Earlwood

A22

A36

Birrell St

Yagoona

A6

Waterloo Rd

Lakemba

Amcliffe

Sydney Airport

Randwick

Carrington Rd

Bankstown

Punchbowl

A34

Becker Rd

A36

M1

Avoca St

South Coogee

A3

A3

Forest Rd

M5

M1

Botany

Bunnierong Rd

Maroubra

Riverwood

Mortdale

Hurstville

Kogarah

Brighton-Le-Sands

Banksmeadow

Little Bay

Padstow

Peakhurst

Oatley

A3

A1

Sans Souci

A1

M5

M1

Port Botany

La Perouse

Peakhurst

Mortdale

Hurstville

Kogarah

Brighton-Le-Sands

Banksmeadow

Little Bay

Padstow

Peakhurst

Oatley

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Sans Souci

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Port Botany

La Perouse

Peakhurst

Mortdale

Hurstville

Kogarah

Brighton-Le-Sands

Banksmeadow

Little Bay

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Oatley

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Sans Souci

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Port Botany

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Port Botany

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Hurstville

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Little Bay

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Peakhurst

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Sans Souci

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Port Botany

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Kogarah

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Banksmeadow

Little Bay

Padstow

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Sans Souci

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Port Botany

La Perouse

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Kogarah

Brighton-Le-Sands

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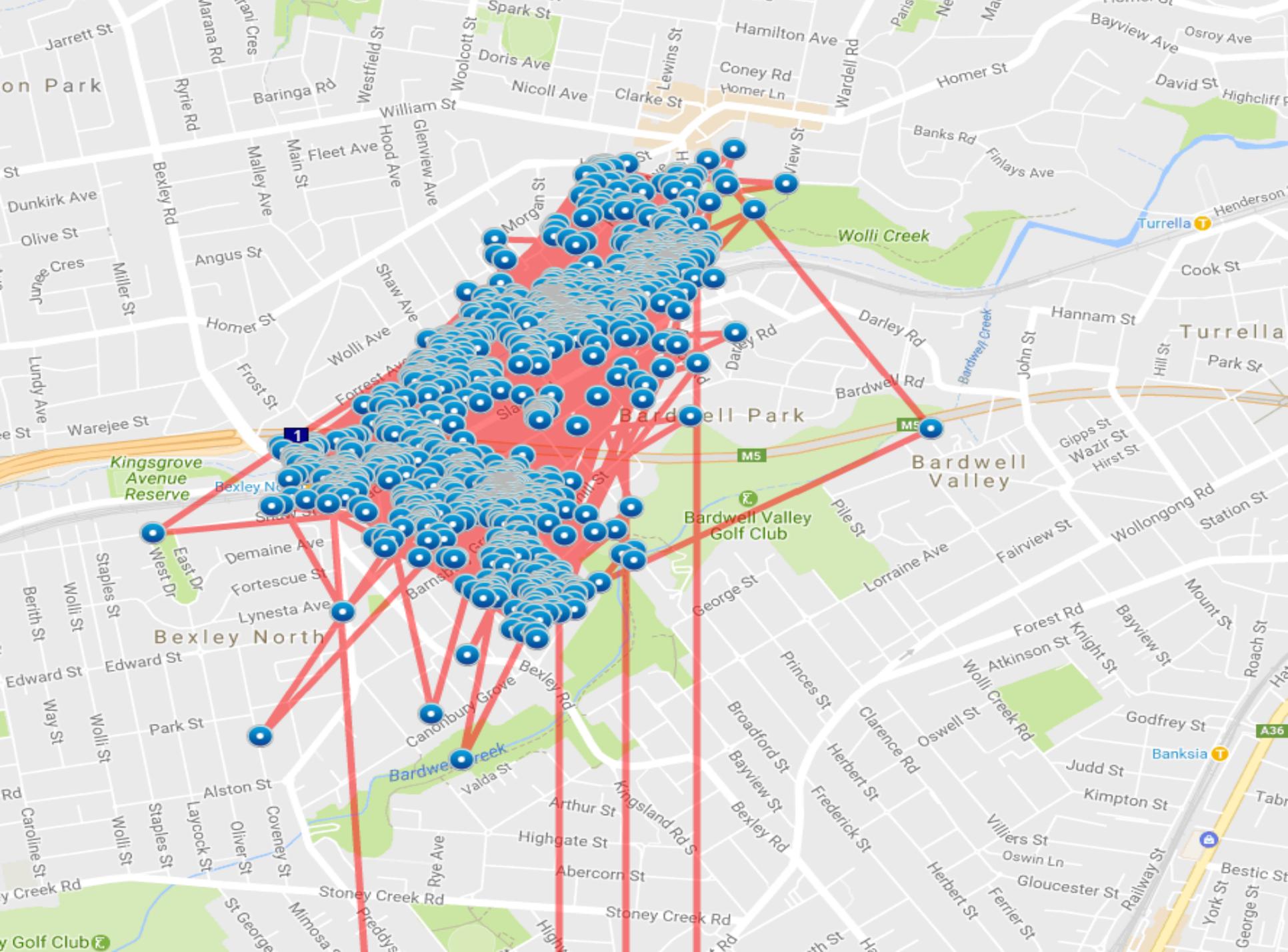
Port Botany

La Perouse

Peakhurst

Mortdale

Hurstville



Unit management

Return to list

1 5438 Wolli Ck male 27-9-1...

One day selection

Precise selection

Positions between:

2016-10-28 08:00

and:

2016-10-29 08:00

Find positions

Found 15 distinct position(s).

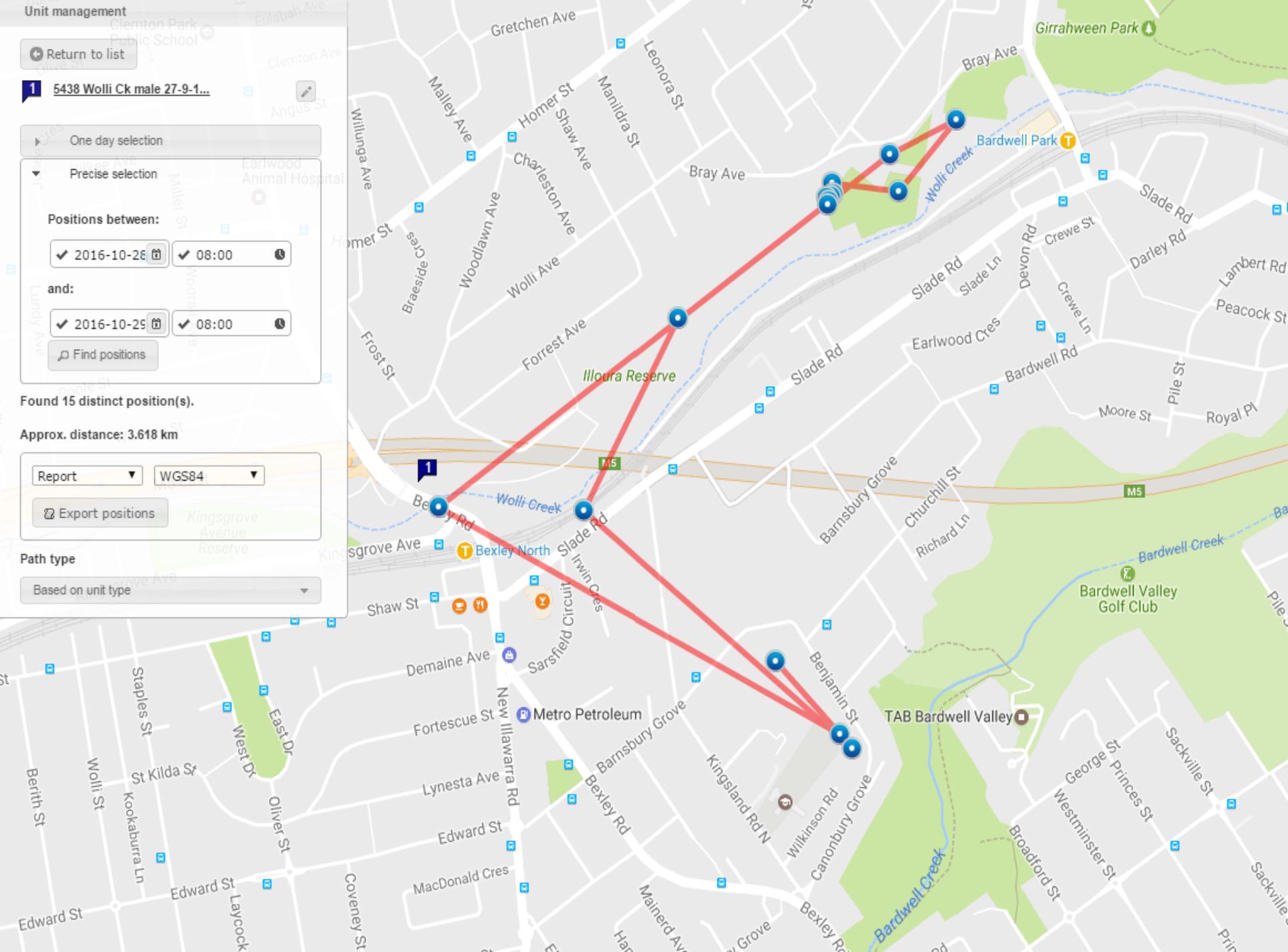
Approx. distance: 3.618 km

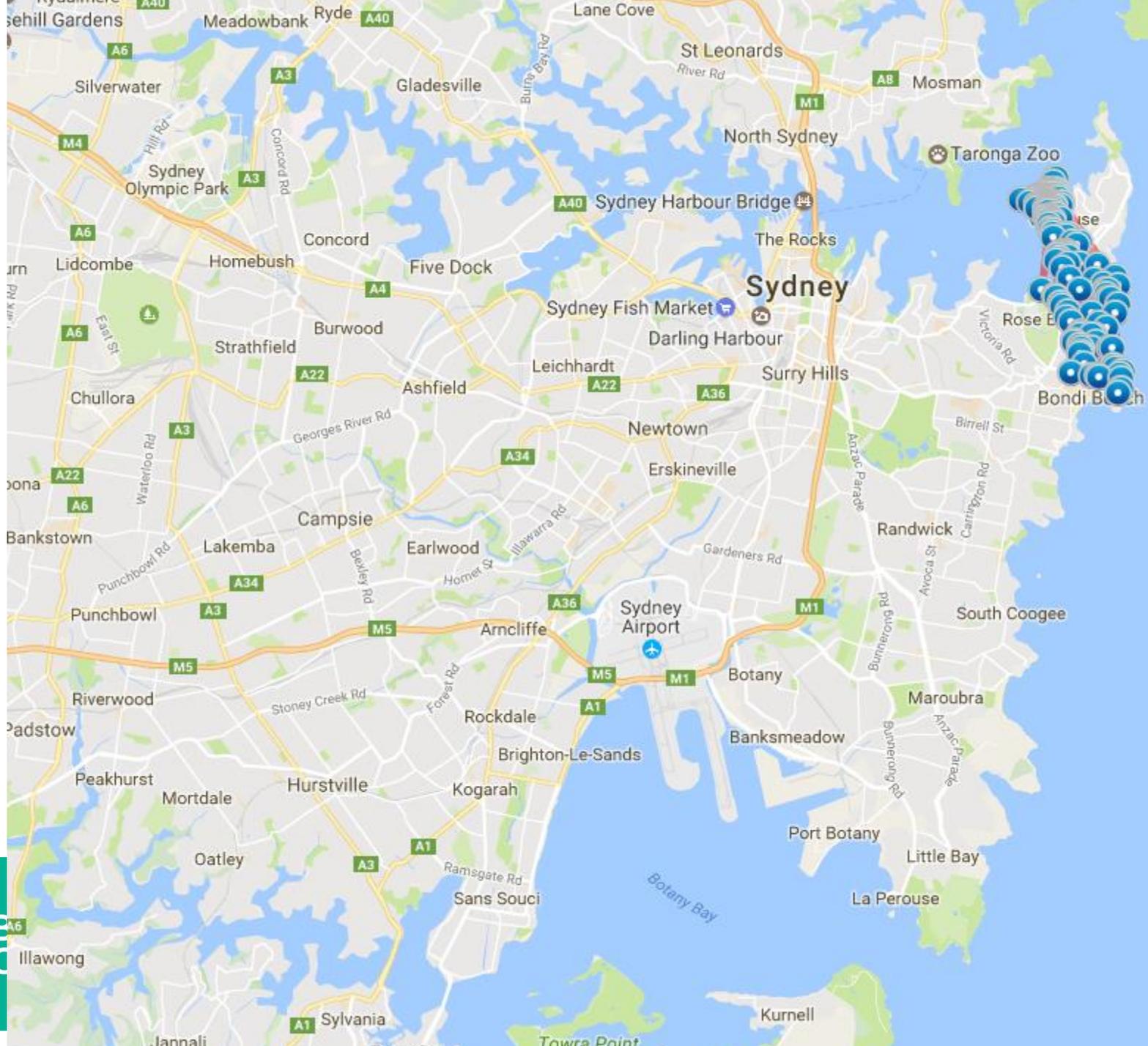
Report WGS84

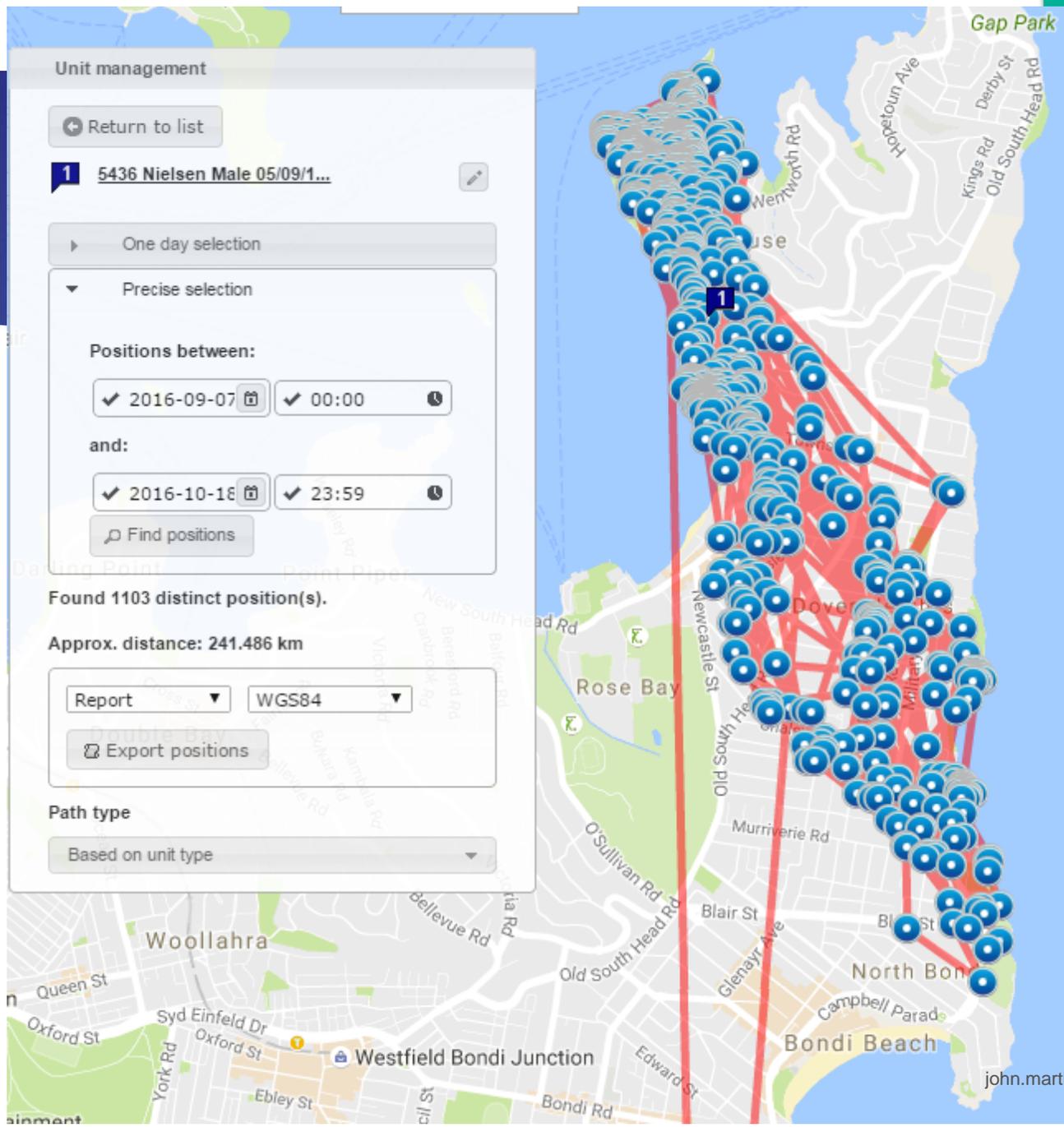
Export positions

Path type

Based on unit type







Unit management

[Return to list](#)

1 [5436 Nielsen Male 05/09/1...](#)

One day selection

2016-10-09

Precise selection

Found 85 distinct position(s).

Approx. distance: 11.883 km

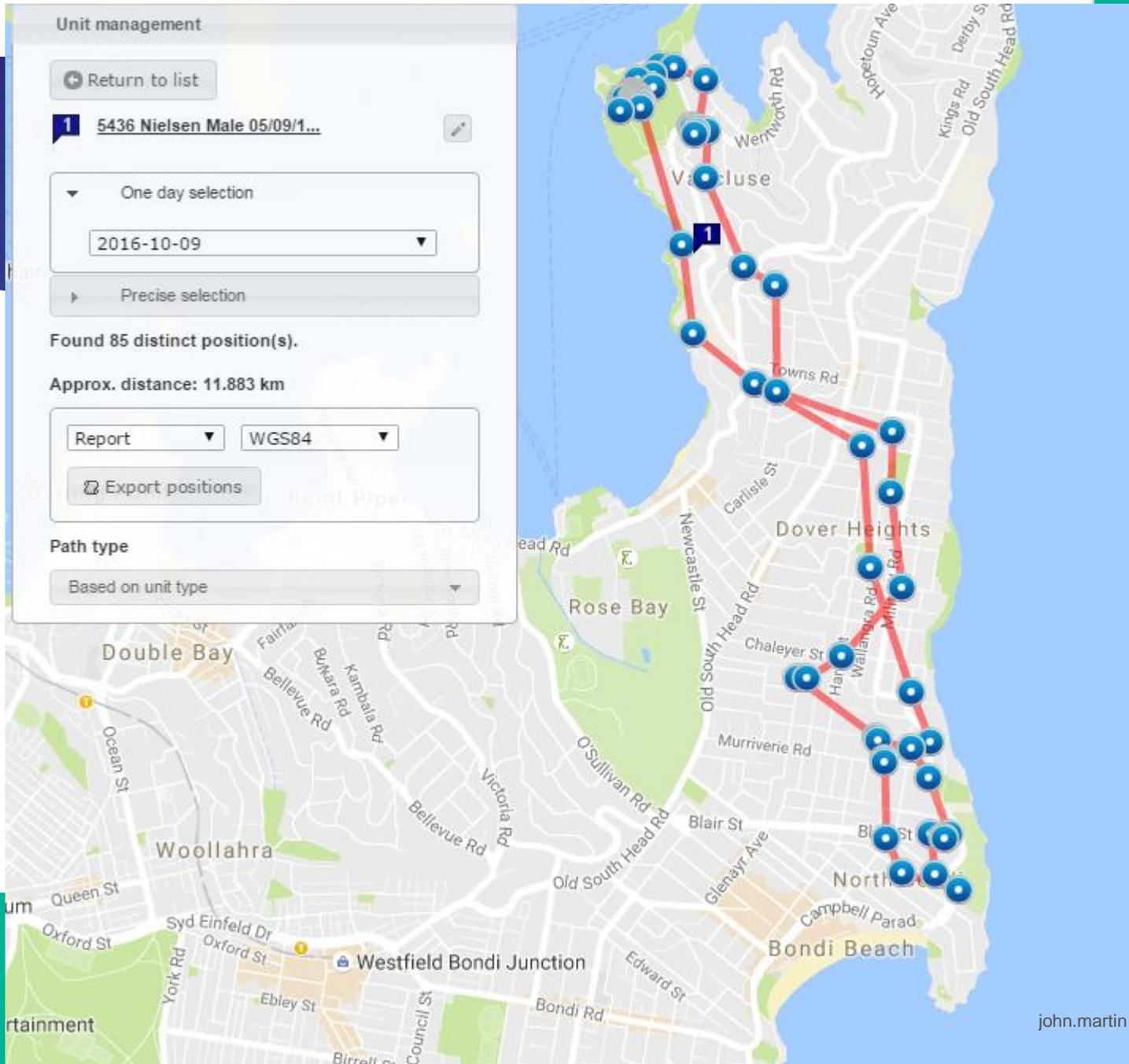
Report

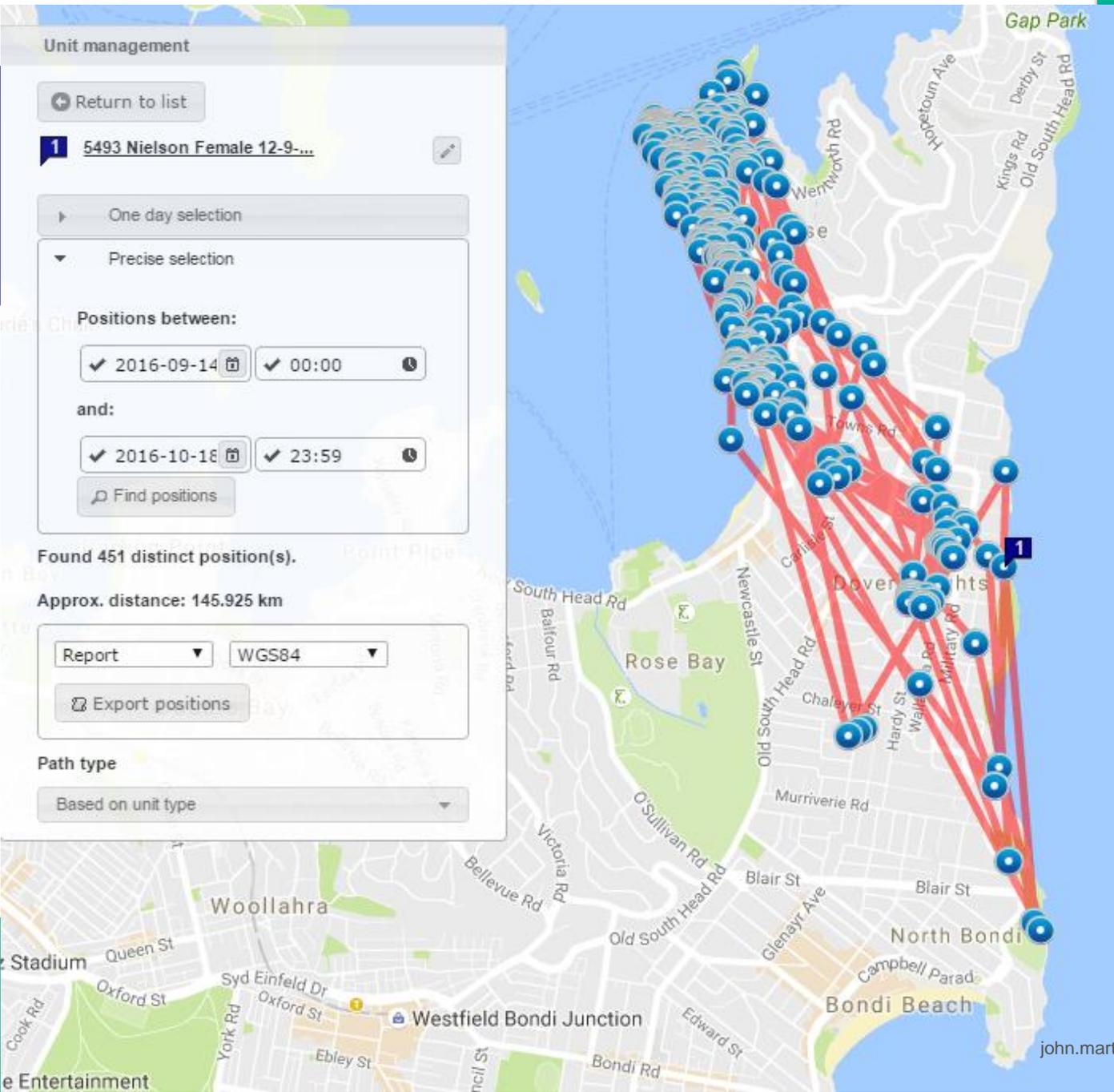
WGS84

Export positions

Path type

Based on unit type





Unit management

[Return to list](#)

1 5493 Nielson Female 12-9-...

One day selection

Precise selection

Positions between:

✓ 2016-09-14 ✓ 00:00

and:

✓ 2016-10-16 ✓ 23:59

[Find positions](#)

Found 451 distinct position(s).

Approx. distance: 145.925 km

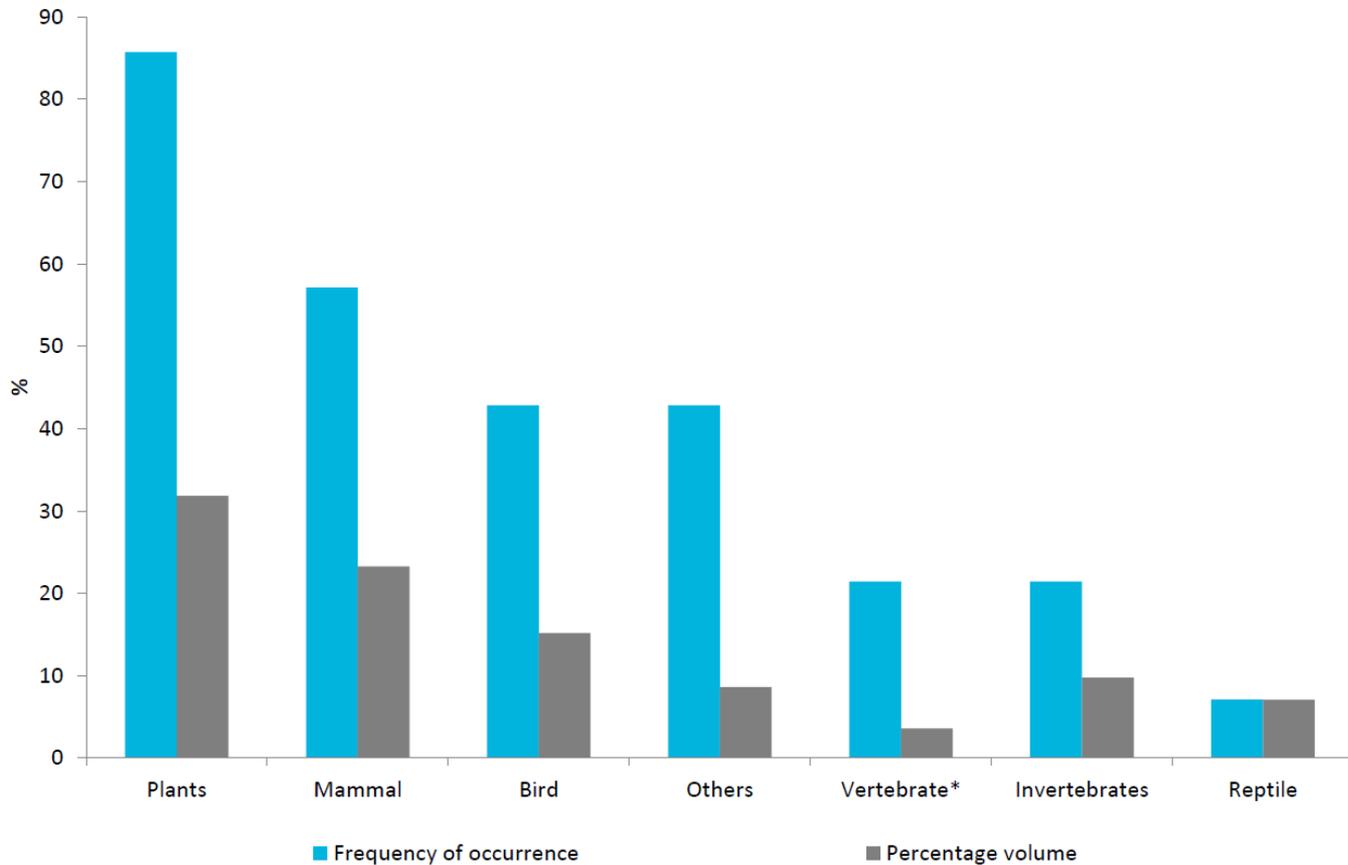
Report WGS84

[Export positions](#)

Path type

Based on unit type

Diet Findings



Diet Findings

Prey Item	No. of stomachs containing prey	No. of items	Numerical percentage (%)	Frequency of occurrence (%)	Volume (%)	Index of Relative Importance (IRI)
Unidentified vertebrate	3	3	2.8	21.4	3.6	0.3
Mammal	8	8	7.3	57.1	23.3	2.5
Rattus spp.	1	1	0.9	7.1	6.6	1.0
Felis catus	1	1	0.9	7.1	6.8	1.1
Unidentified	6	6	5.5	42.9	9.9	0.4
Bird	6	6	5.5	42.9	15.2	1.6
Gallus gallus domesticus	2	2	1.8	14.3	6.1	0.6
Family Anatidae	1	1	0.9	7.1	4.1	0.7
Unidentified	3	3	2.8	21.4	5.0	0.4
Reptile	1	1	0.9	7.1	7.1	1.1
Unidentified lizard	1	1	0.9	7.1	7.1	1.1
Invertebrates	3	68	62.4	21.4	9.8	3.8
Colleoptera adult	2	2	1.8	14.3	0.3	0.1
Colleoptera Larvae	2	11	10.1	14.3	1.6	0.8
Orthoptera	3	54	49.5	21.4	7.7	2.7
Annelida	1	1	0.9	7.1	0.2	0.2
Plants	12	17	15.6	85.7	31.8	1.6
Grasses	7	7	6.4	50.0	20.3	0.5
Woody material (sticks, bark)	6	6	5.5	42.9	6.5	0.3
Leaves	1	1	0.9	7.1	0.2	0.2
Seeds and grains	2	2	1.8	14.3	4.8	0.5
Other vegetative matter	1	1	0.9	7.1	0.1	0.1
Other	6	6	5.5	42.9	8.6	1.4
Food packaging (labels, foil)	3	3	2.8	21.4	3.1	0.3
Rubber fishing lure	1	1	0.9	7.1	0.1	0.1
Egg	1	1	0.9	7.1	0.1	0.1
Unidentifiable	1	1	0.9	7.1	5.3	0.9
Processed meat	1	1	0.9	7.1	0.4	0.2

Outcomes - Website

► Development of Southern Sydney Fox Scan Website

FOX SCAN

COMMUNITY MAPPING
WHERE YOU HELP MAP FERAL ANIMALS
AND THE DAMAGE THEY CAUSE
A LANDHOLDER, COMMUNITY, INDUSTRY, GOVERNMENT
& BUSINESS COLLABORATION

Home About FoxScan Get involved Damage and Control Photo Gallery Resources for you About Us Regional sites

English Ελληνικά Tiếng Việt العربية 中文(简体)

LOG IN REGISTER Search GO

You are Here FoxScan

Welcome to the southern Sydney fox mapping resource

Fifteen southern Sydney Councils are working together to manage fox impacts in 2016

Introduced foxes are a declared pest in NSW, and are causing increasing problems throughout Sydney. Fifteen southern Sydney Councils have come together to develop a regional and coordinated approach to fox management to address these problems.

Over the next year the project will study the behaviour of urban foxes, engage local communities and map the distribution of foxes in southern Sydney enabling fox control to be undertaken at strategic locations.

To reduce the impacts of foxes, we encourage you to record and map sightings of foxes and fox impacts in your local area in FoxScan.

» Start mapping foxes in your local area now!

Learn more about the project:
- Media release (Sept 7, 2015)

Record Fox Activity

START MAPPING

Recent Records 2,895
TOTAL RECORDS 7,308

How you can get involved

1. Register here, then Login

Outcomes – Community Engagement

Locals out-foxing predator

RESIDENTS have been praised in protecting native fauna and flora from foxes.

Over the past 12 months, 15 foxes have been removed from areas of the city after the council developed and introduced a Fox Management Plan.

Administrator Richard Colley says it is part of a coordinated project involving more than a dozen councils which make up the Sydney South Region Animal Management Com-

mittee.

"The aim is to control the fox population and minimise its impact on our natural environment," Mr Colley said.

"It's a predatory species, known to roam quite close to urban environments, so it's up to us to have a system that tracks and monitors fox movements.

"So far, the program has been one of the most successful in Sydney."

Under the fox management plan, res-

fox sightings through the FoxScan app, which enables the council to identify fox 'hot spots'.

"Two areas these scavengers frequent are around western areas of Panania and Picnic Point," Mr Colley said.

"It's wonderful to see community participation when it comes to such a serious issue."

To find out more, visit cityofcanterburybankstown.com.au/fox or foxscan.org.



Home About Posts Photos Videos Ever

Like Comment Share

702 ABC Sydney Yesterday at 5:33 PM · World News

The community education website has recorded very high fox numbers in suburbs such as Oatley, Lugarno, Connells Point and Sylvania.

A low to medium number of sightings have been recorded in Arncliffe and Bardwell Park, south-west Sydney around Revesby and East Hills, thr... See more



Pest program: Sydney's urban foxes targeted Councils across Sydney successfully reduce the number... abc.net.au



Marrickville Council @MarrickvilleNSW · Sep 14
Seen a fox? U need foxscan.org.au/sydney south bit.ly/10tKNPr
#NationalBiodiversityMonth @envirolog



2

GRANT FUNDING FROM NSW DEPARTMENT OF PRIMARY INDUSTRIES

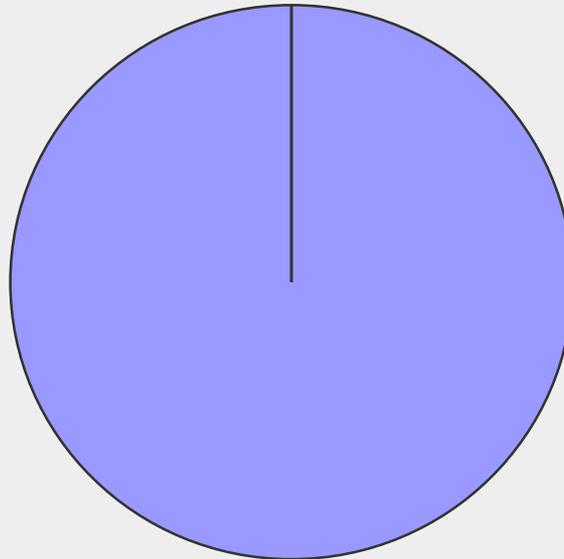
Sutherland Shire Council's Pest Species Unit has received grant funding from NSW Department of Primary Industries - Crown Lands and Sydney Coastal Council Group Inc. as part of the Sydney's Salty Communities to undertake pest animal and noxious weed control at numerous sites throughout the Shire. The grants will be utilised in undertaking vertebrate Pest Management (Cane Toads, Foxes and Rabbits) and noxious/environmental weed control as part of SSC Bushland Management programs to protect Endangered Ecological Communities and threatened species.

Outcomes - On Ground Control

- ▶ 10 of 11 Councils undertook on ground control
- ▶ Control included
 - ▶ Den fumigation
 - ▶ Spotlight cull
 - ▶ Trapped
 - ▶ Baited
- ▶ Very rough estimate 150 foxes killed

Outcomes – Council Changes

Will you or the relevant officer/s at your council continue to participate in regional fox control management group initiatives?



Lessons Learnt

- ▶ Resources
- ▶ Time
- ▶ Government departments
- ▶ Community lack of knowledge
- ▶ Foxes are difficult animals to catch

Future

- ▶ Southern Sydney Regional Organisation of Councils have taken on this project.
- ▶ This was supported by the general managers of the Councils that fall within SSROC.
- ▶ Monitoring will continue through universities for approx 3 years
- ▶ FoxScan website will be maintained until July 2017

Funding

- ▶ The Southern Sydney Feral Foxes project was supported by Sydney Coastal Councils Group through funding from the Australian Government.
- ▶ Special thanks to City of Canterbury-Bankstown and Sutherland Council who helped manage the project over the 18 months

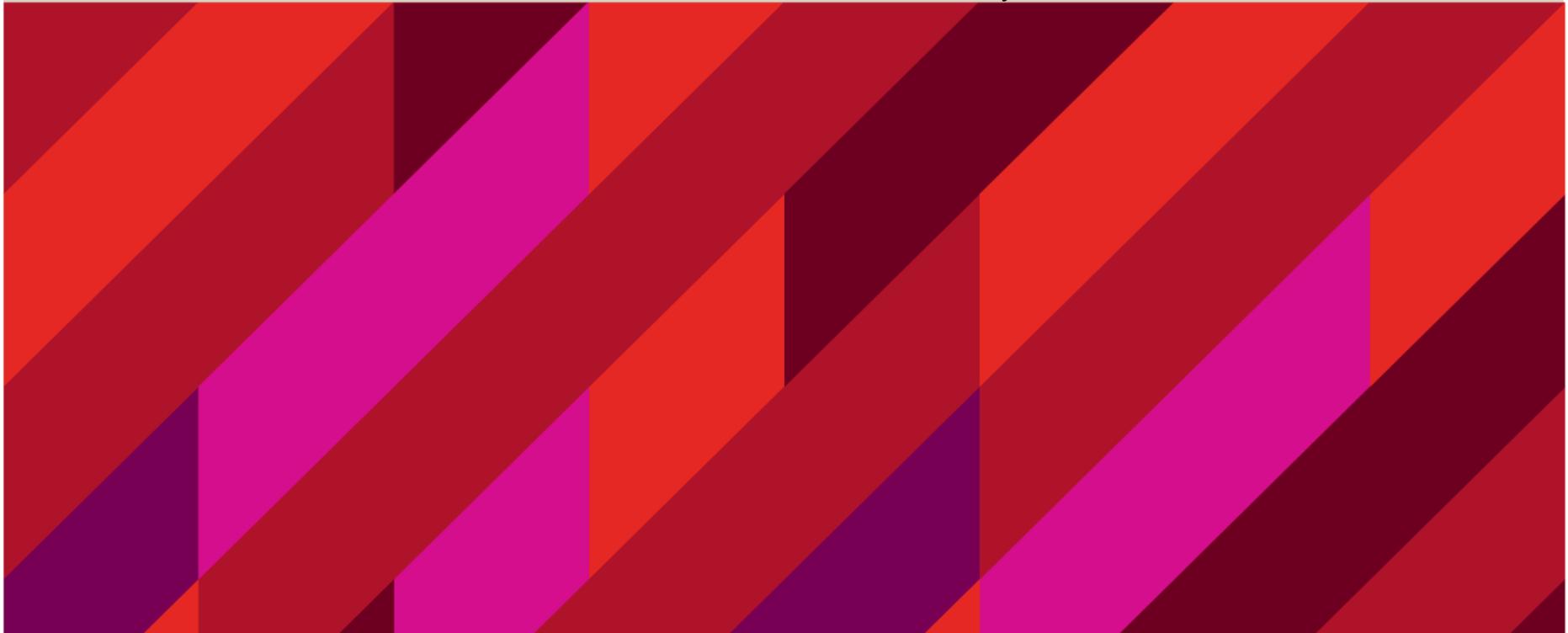


Backyard Habitat Review

SHOW CASING COUNCIL'S BUILDING BACKYARD HABITAT

Dr Louise Metcalf, ARIES Academic Director

The Australian Research Institute for Environment and Sustainability



THREATENED SPECIES IN SYDNEY

- 28 threatened mammals
- 68 threatened birds
- 13 threatened reptiles
- 6 threatened frogs
- ...and every little bit counts!
- But how do we maximise our efforts?



Image: Matthew Stanton

RESEARCH AIMS:



- Our aims:
- ...to examine what a comprehensive backyard native flora and fauna habitat program may include, and to provide a summary, via a series of case studies, of the various programs available for councils and others to implement.
- ...and using the above, create a tool that councils could use to measure the program itself.

COUNCIL'S PARTICIPATING

- 18 completed the questionnaire
- 12 councils participated in the interviews
- 3 external programs also contributed material.



Image: Willie Wildlife

FINDINGS

FORMALITY MATTERS

1. Measure - what YOU can impact

- i.e. the backyard changes people make, the things that people do – not the outcome of how many animals

2. Be Strategic – design and show impact

- A formal design is essential, state the objectives and make sure they work for the community, then plan, plan, plan
- Report on those objectives



FINDINGS BUT IT'S ALL ABOUT PEOPLE

3. Know YOUR people

- Create a database of people who participate in workshops, anything related, and stay in touch, treat them well!

4. TALK to people

- Face to face communication works best, everything else second.



FINDINGS

... VERY HUMAN PEOPLE

5. Give it time

- The most successful programs were the programs that had been operating for at least 4 years

6. Embrace human foibles

- Use the thin edge of the wedge that “cute” or unusual animals represent e.g. stingless bees



FINDINGS AND COLLABORATE!

7. Grow your people skills

- Learn to market, persuade and make your case to management

8. Work together

- Link to as many external programs as possible, they doing things that councils are not able to replicate and shouldn't try
- Make specific connections to related programs such as Connected Corridors



THANK YOU!





Climate-ready biodiversity management

A tool to help design biodiversity projects in the face of climate change

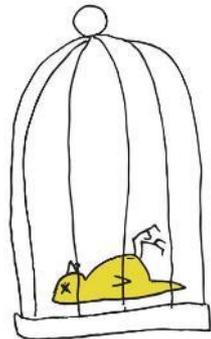
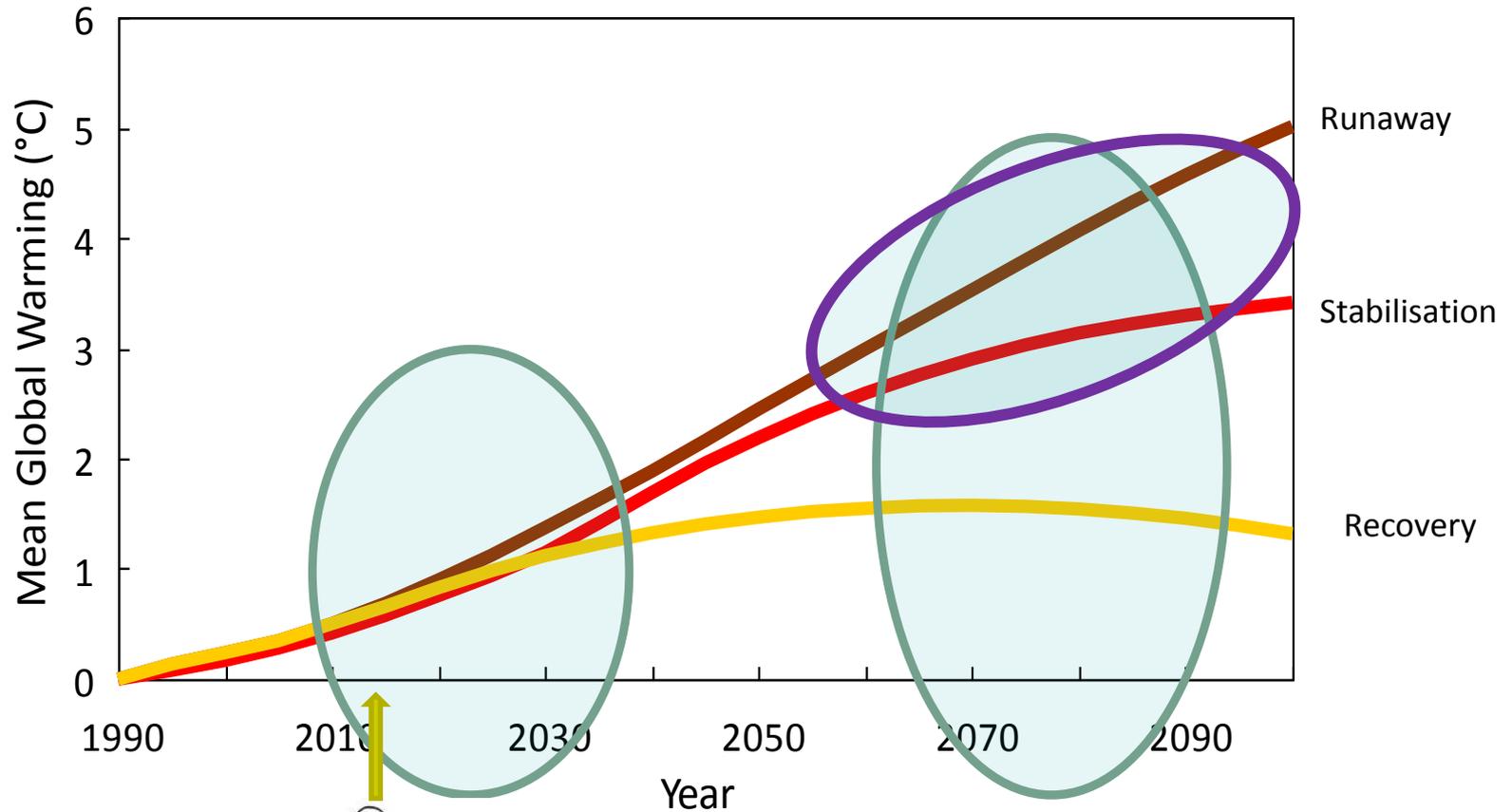
Michael Dunlop, Paul Ryan

CSIRO LAND & WATER
www.csiro.au

Salty Communities, SCCG, February 2017

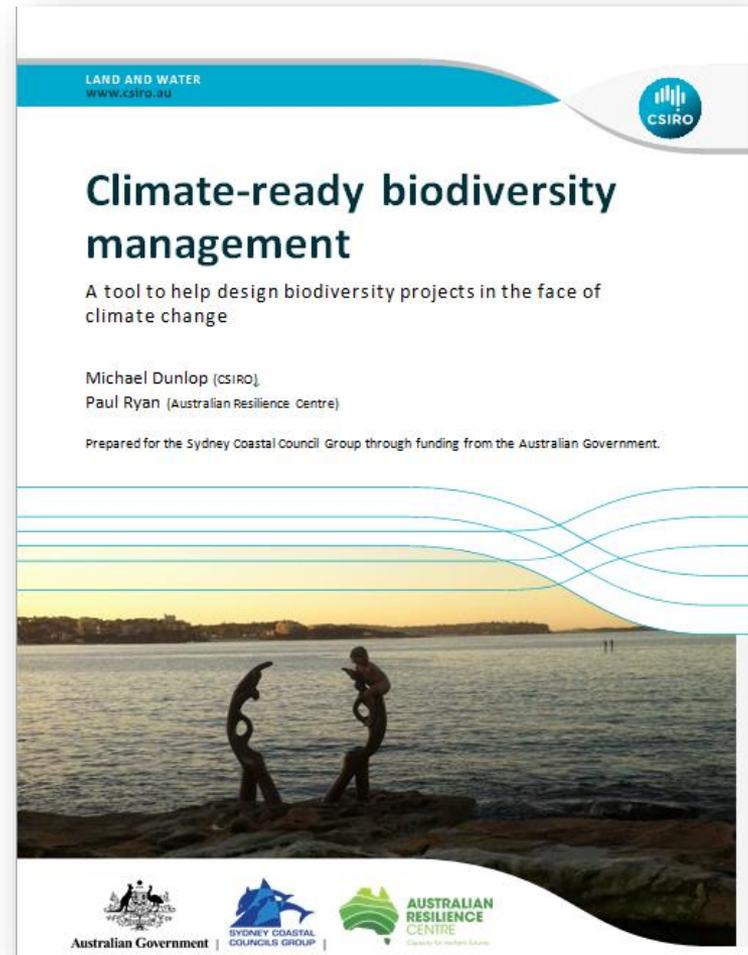


Adaptation = Preparing for transformation



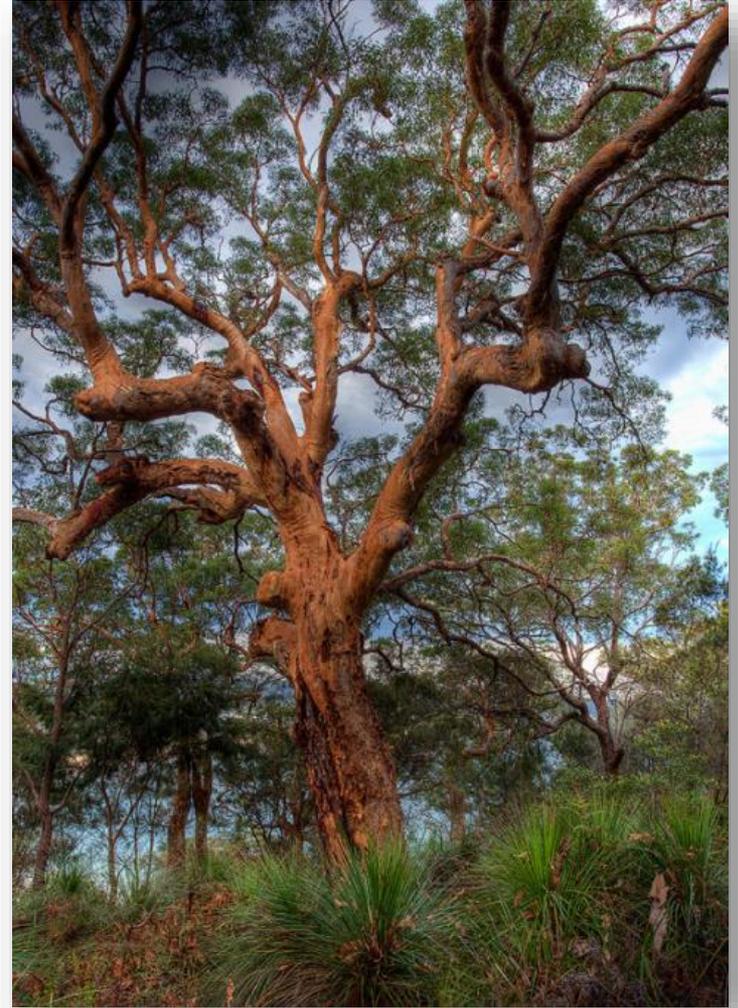
The opportunity

- Adaptation capacity in councils
 - Deliver biodiversity projects
 - *Salty Communities* project
 - Climate-ready approach
-
- Council biodiversity projects including climate adaptation
 - Increased adaptation capacity in councils



Talk Outline

- The problem / opportunity
- What we did
- Climate-ready tool
- What we discovered
- How to take that further



Acknowledgements

Participating councils:

- scoping and prototyping
- various climate-ready workshops
- feedback on the written tool

Expert Reference Group

Fiona, Duncan and Geoff from SCCG

CSIRO EAP team <https://research.csiro.au/eap/>

GSLLS and others involved in subsequent development



Climate-ready tool development

1. Consultation with councils (May & June 2015)

- Scoping webinar and prototyping workshop (June)
 - Needs to be a facilitated process, not a stand alone tool

2. Climate-ready workshops (Aug. Sept.)

- Three one-day workshops
- A 90 min teleconference

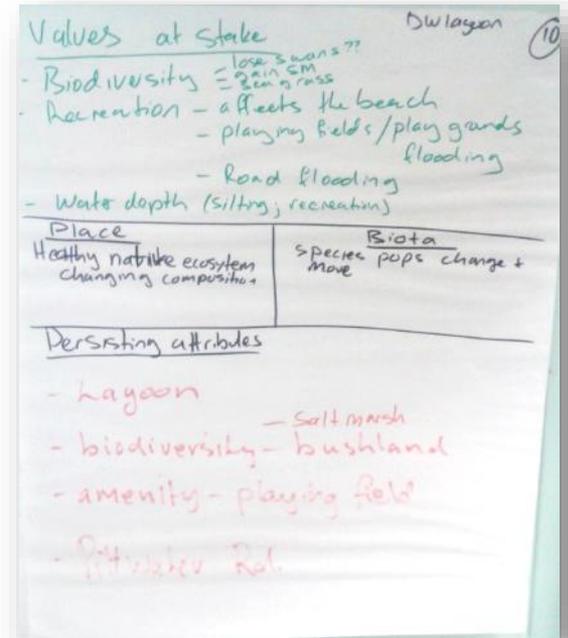
3. Tool documentation

- Up-dated the processes
- Input from councils, SCCG, peers

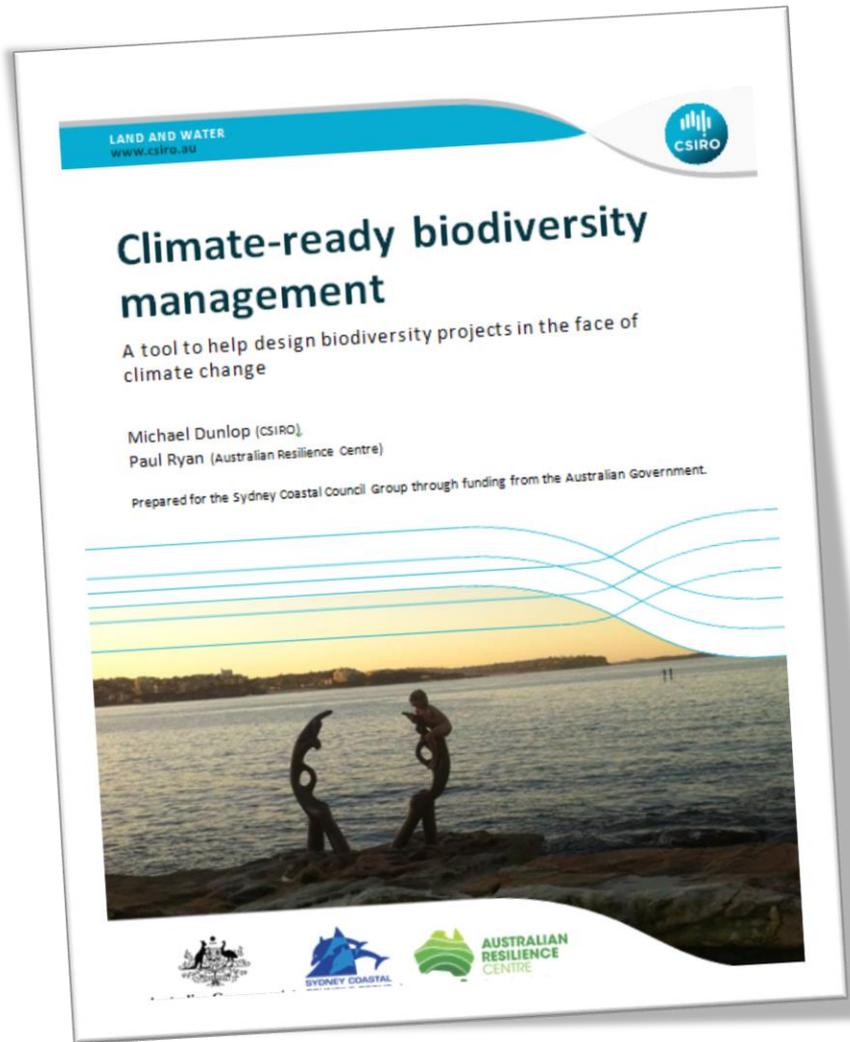
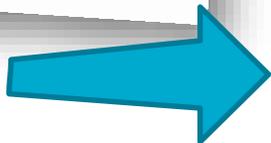
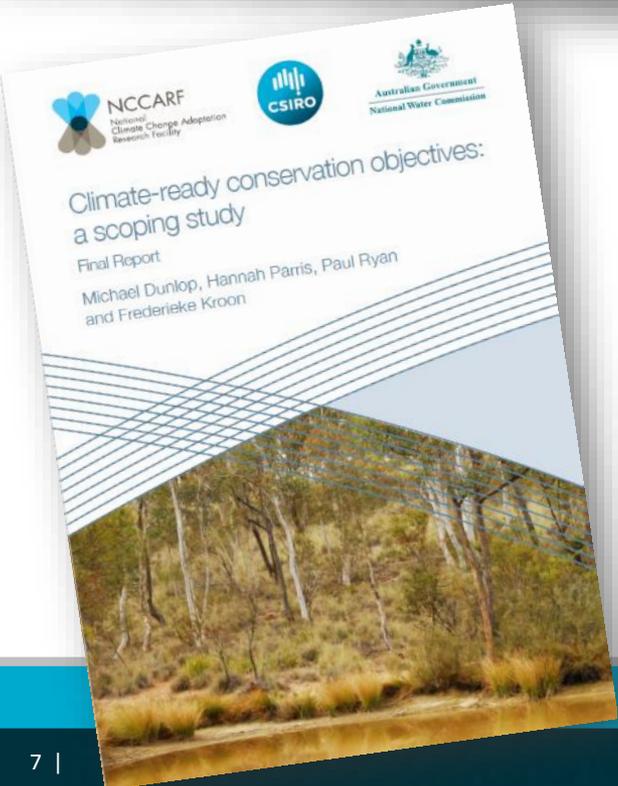
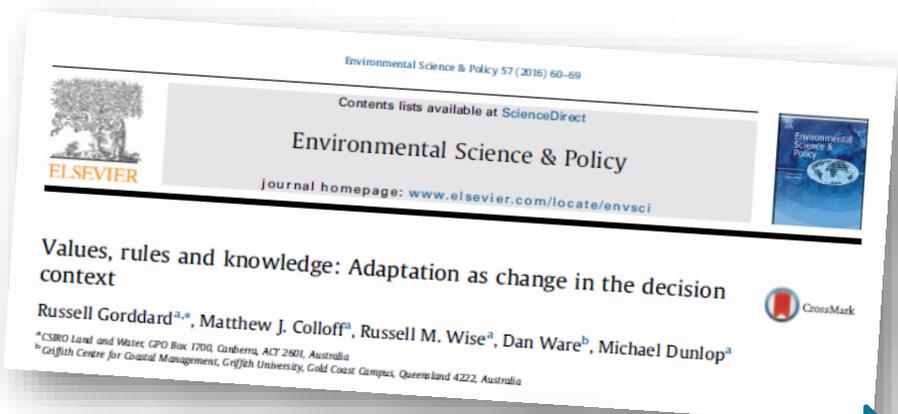
4. Salty products workshop

5. Continued development

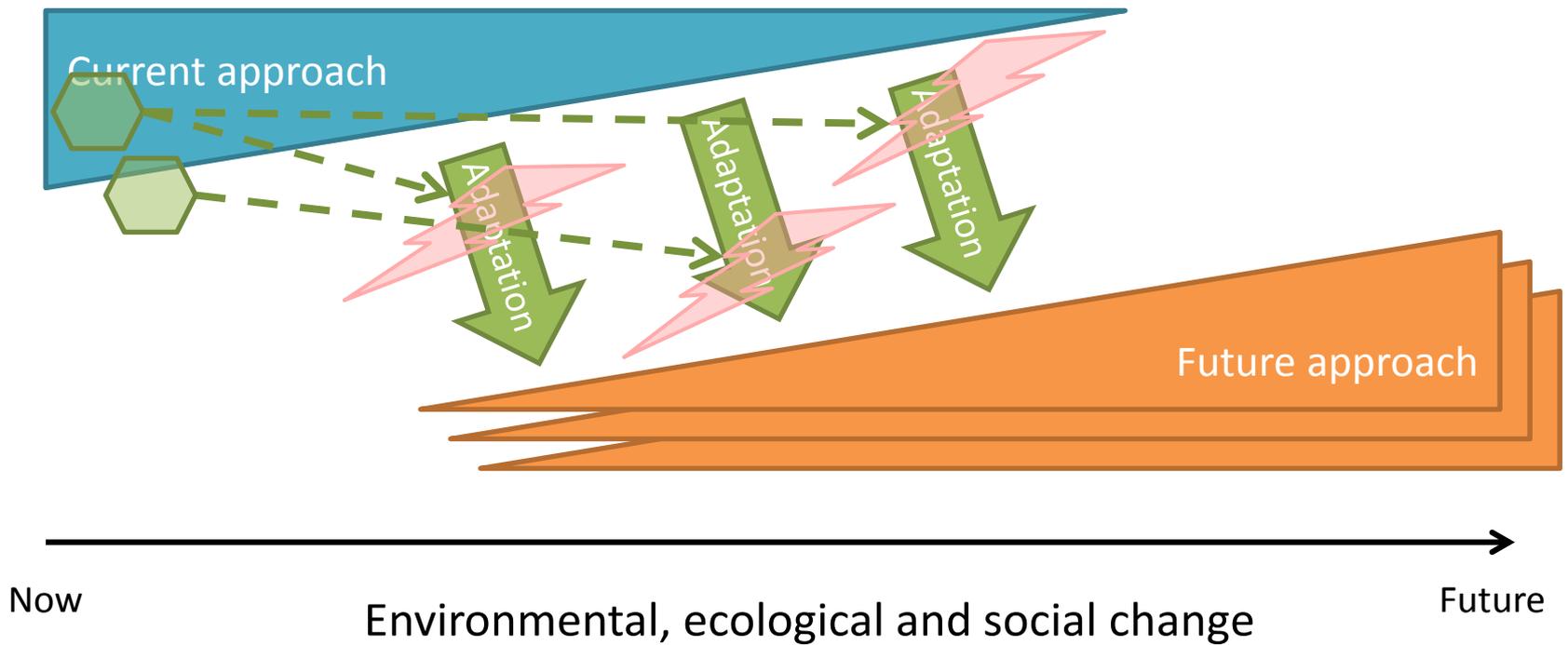
- Greater Sydney LLS (3), SA (2), conferences, seminars
- Cooks River Alliance, Waverley



The climate-ready tool

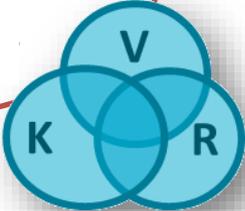


Adaptation: *Preparing for transformation*

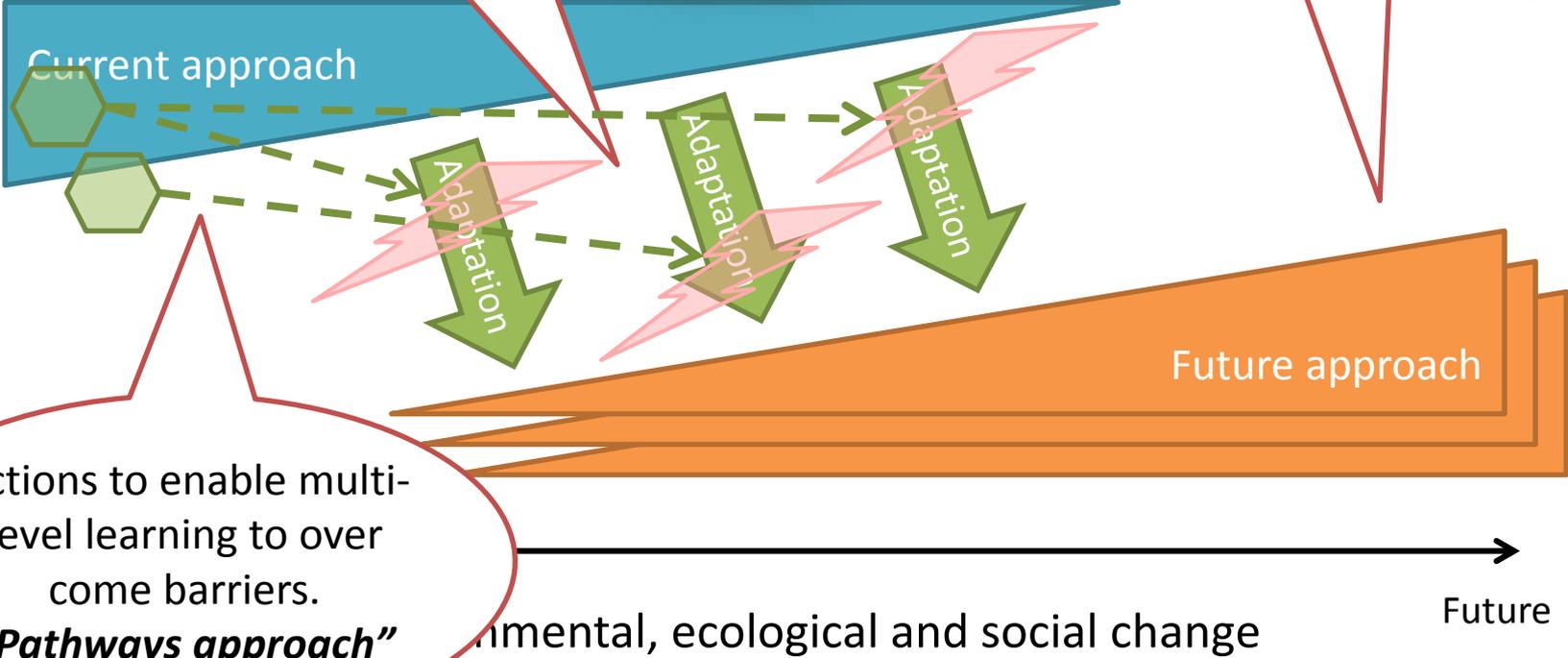


Adaptation pathways: *multi-level learning*

Understand how to make different decisions.



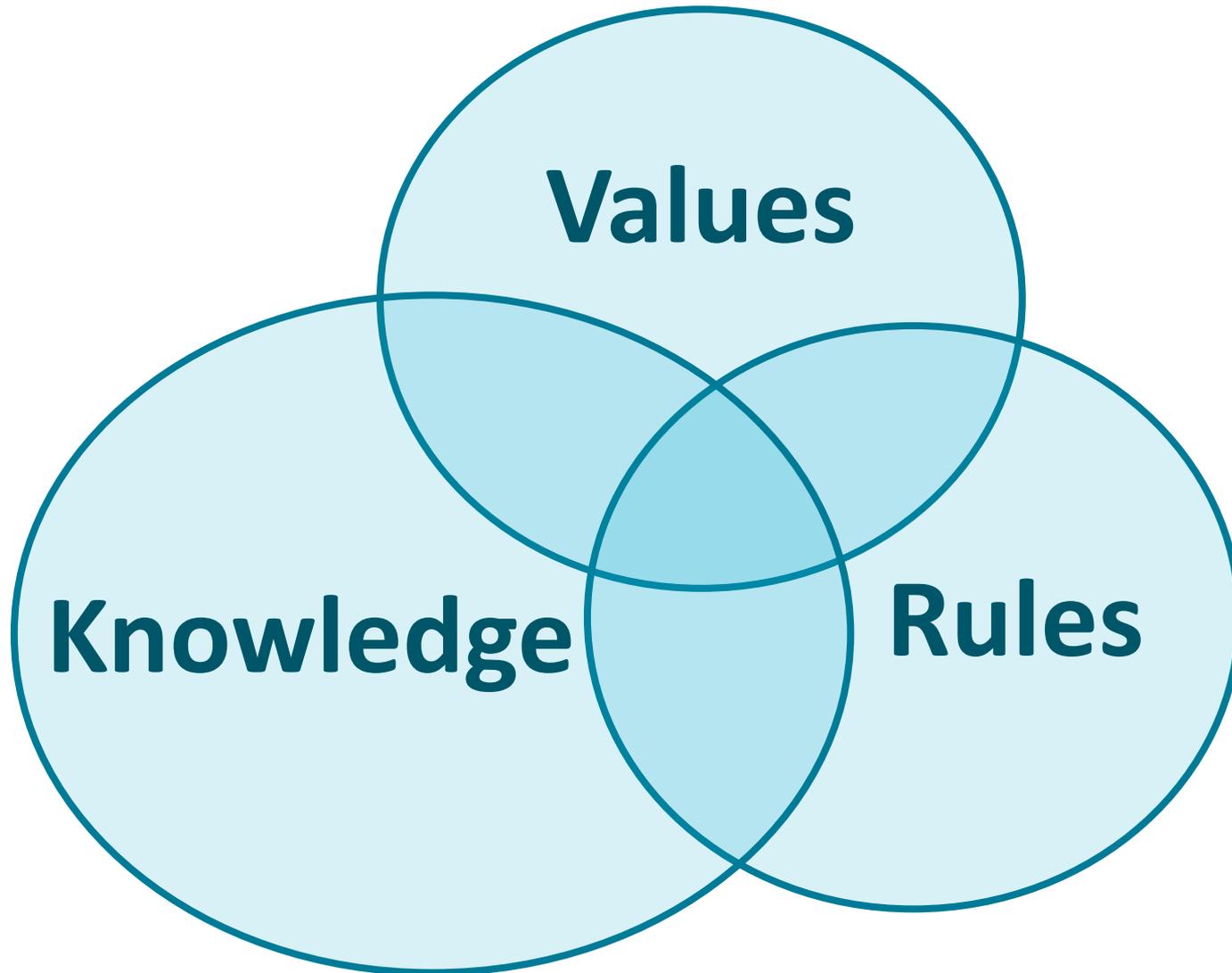
Understand the implications of future change.

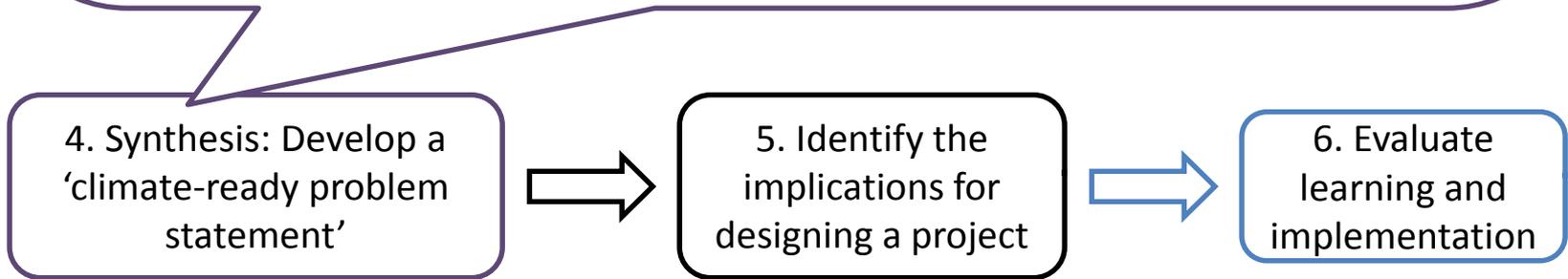
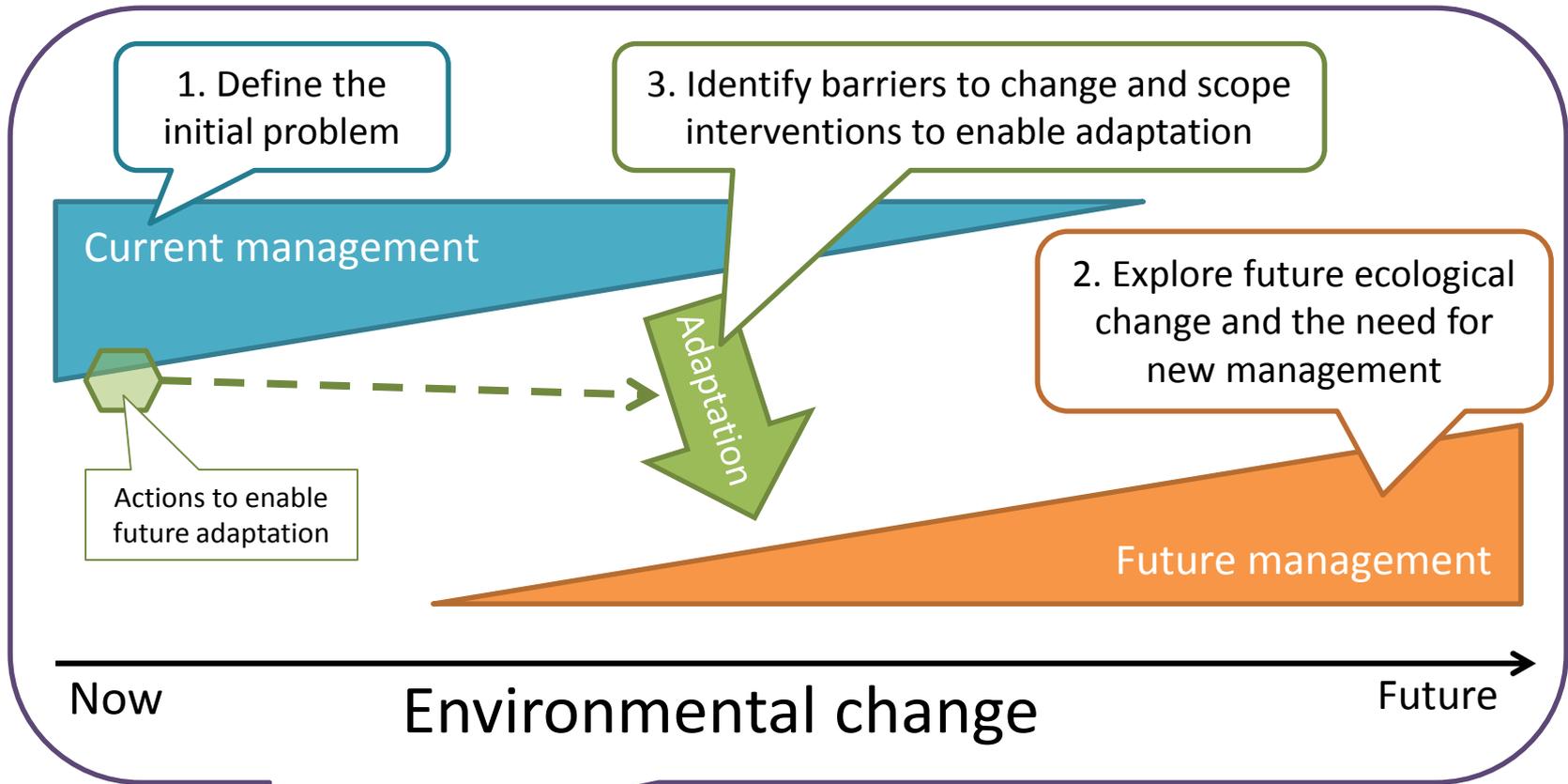


Actions to enable multi-level learning to overcome barriers.
"Pathways approach"

(Wise et al. 2014; Gorddard et al. 2016; Dunlop et al. 2016)

Decision context (vrk)





What we learned developing the tool

Climate-ready approach reflected in projects?

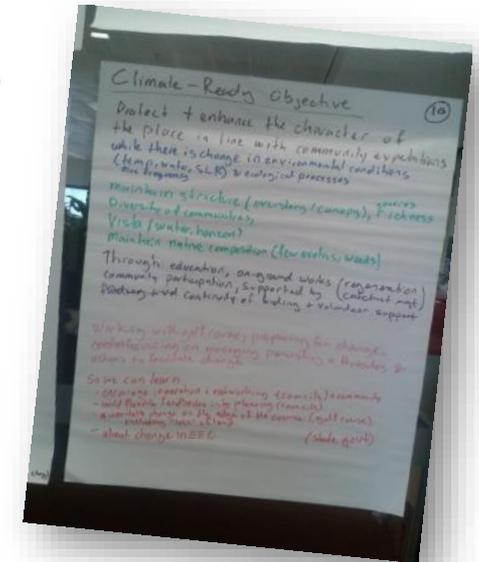
1. Some changes in choice of project
2. All recognised future ecological impacts, most didn't anticipate transformational change
3. Some measures to address climate impacts
4. Very few / none addressed the threshold issues of
 - Change and loss, managing persisting values rather than status quo
 - Impacts on multiple values
 - Identification of barriers and actions to overcome
5. All had some level of learning focus

Participants feedback

1. Very good engagement with concepts
2. Extremely positive survey results *
3. But, not enough to enable people to act on it

Process of building capacity

1. Climate-ready concepts are relevant, and help improve understanding of adaptation
2. Revise process: facilitated, not a stand alone tool; additional support material
3. Prepared scenario of large ecological change and a local champion* (Thanks Bill @ GSSL!)
4. Too much for one day: Two-day process? Very hard to sell "capacity building"* or "a learning process"



Why is adaptation so hard???

Example: Bush Regeneration

- Desire to increase options in the face of climate change
- Project: Plant mixture of different species, to enable learning
- Learning (vrk) by project officer, community, government, council planner, seed supplier, other councils
- Support to change regeneration practice
- Do bush regeneration in climate-ready way

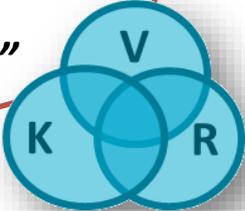


A single intervention not enough

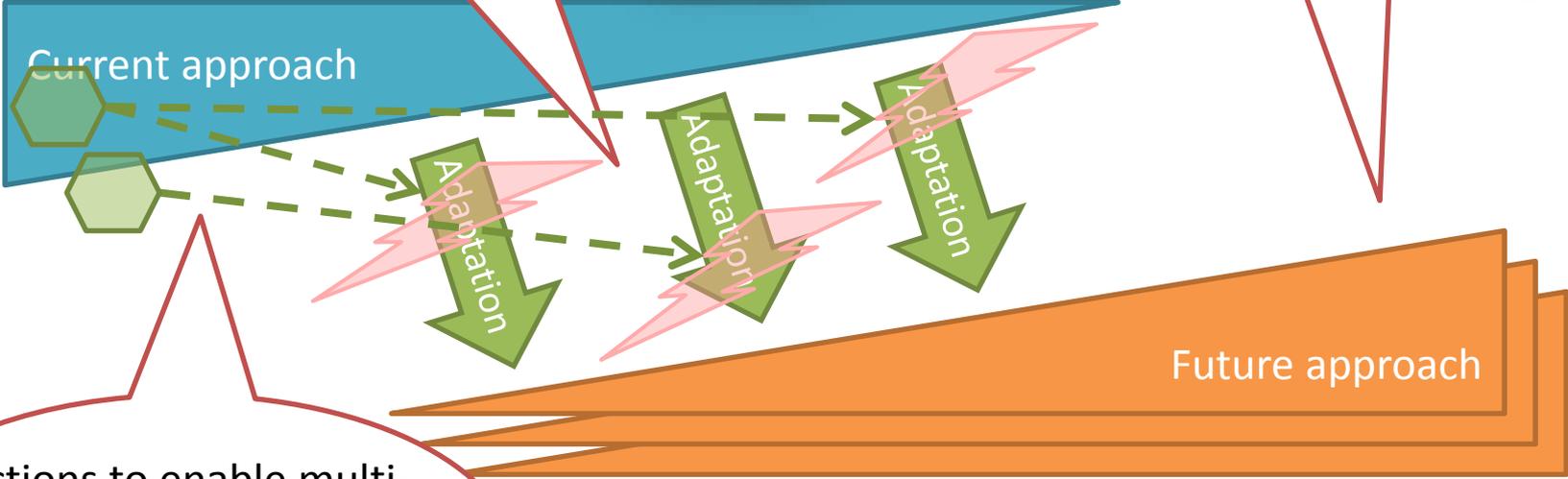
- Incentive (no organisational driver), capacity (too hard), desire, immediate needs; especially hard for an individual in a bureaucracy.
- Even to do a trial there are significant barriers to overcome: in council, which spp, techniques, volunteers, legislation, other land holders, monitoring to enable learning, engagement, ...

Adaptation pathways: *multi-level learning*

Understand how to make different decisions.
“values-rules-knowledge”



Understand the implications of future change.
“Climate-ready”



Actions to enable multi-level learning to overcome barriers.
“Pathways approach”

Environmental, ecological and social change

Future

(Wise et al. 2014; Gorddard et al. 2016; Dunlop et al. 2016)

Taking it further

Building capacity

- Two-day workshop process: more dedicated focus on actions to enable learning
- Case studies
- Focus on planning rather than (as well as) projects

Enabling environment

- Maintaining the network of people engaged in the approach
- Institutional mandate
- Governance: *more emphasis on learning to do differently, rather than accountability and efficiency*

Thank you

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SYDNEY'S SALTY COMMUNITIES – TURNING THE TIDE FOR BLUE + GREEN CARBON

Literature, Data and Practice Review
Sydney Coastal Councils Group



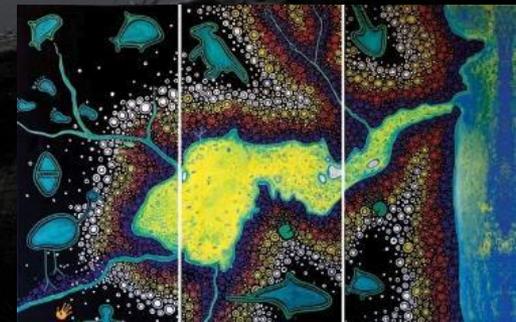
ACKNOWLEDGING COUNTRY AND PEOPLE

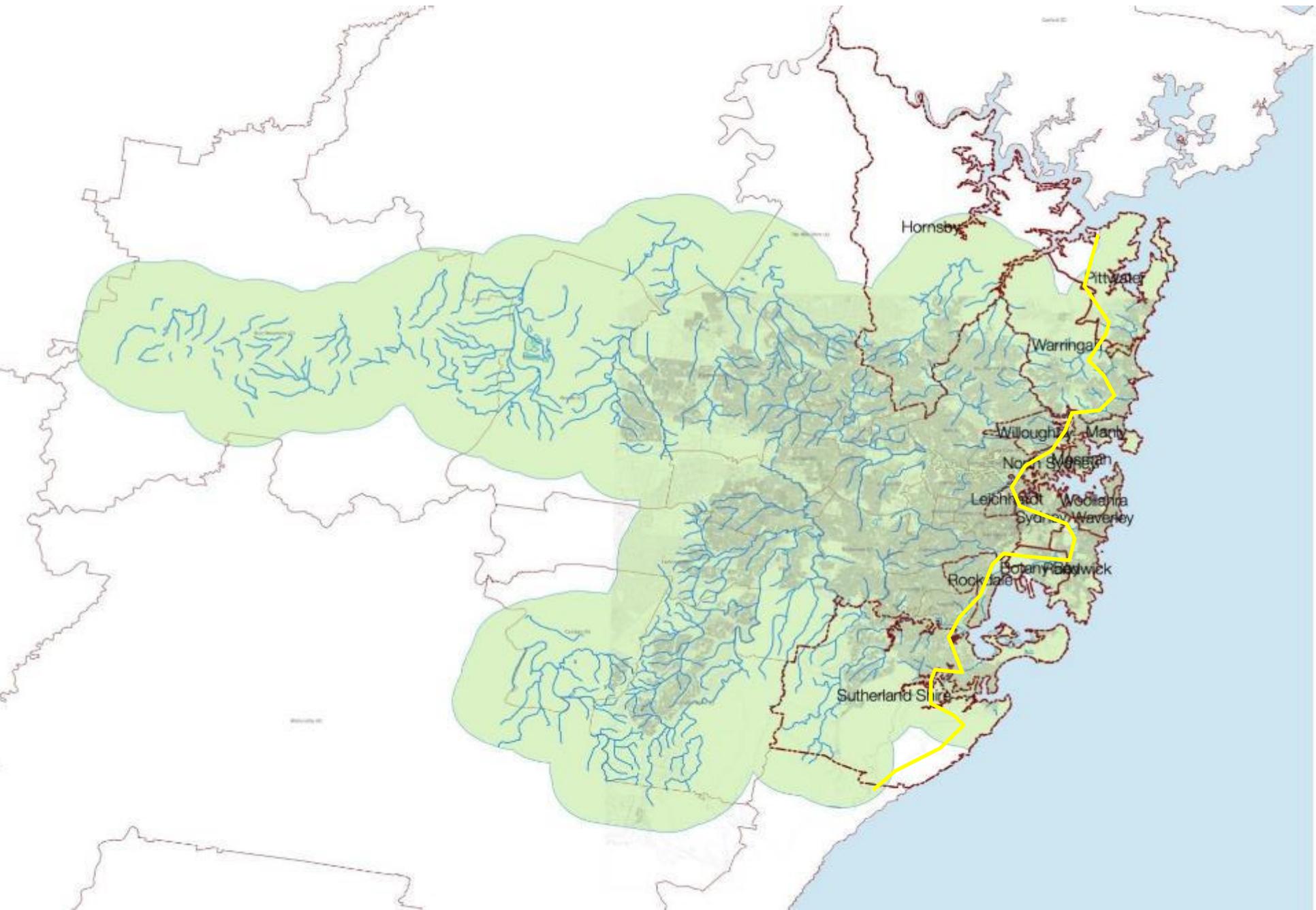
Acknowledgment and Gratitude to the Original People of this Land

As People of today we are Stewards of this Land.

May our Connection be Strong, our Care Deep and we Appreciate what has gone before us
and what will go beyond us.

To the people in the Councils, SCCG, Ocean Watch, AP Gee Chapman....





ECAs Role – Questions

Questions investigated through the project included:

- What information is currently available on Salty Community Biodiversity?
- Where does it sit (what Councils / agencies etc) have it?
- What are the gaps in biodiversity management – this includes literature, data, research, on-ground projects etc.
- Briefly assess if plans, policies, strategies etc such as Biodiversity strategies address biodiversity and the Changing Climate?



PURPOSES

- To provide a review of the available information about Sydney Coastal biodiversity and its management.
- Understand how the federal, state, local, scientific, community biodiversity management relates to the Sydney Salty Communities.
- Identify gaps in the biodiversity information and management for the Sydney Region Salty Communities such that funding and partnership projects can be prioritised to start to fill gaps and bridge knowledge.
- Improve retention and management of biodiversity in the Sydney Region Salty Communities through sharing available information



OBSERVATIONS

- Biodiversity in the study area is diverse, often unique, and under threat if not actively managed.
- Biodiversity officers in Council make a difference.
- Smaller Councils had great ‘friendly’ communication between planning, environment and compliance areas.
- Grants make a difference not only for those receiving grant but those who hear about them e.g. Golf Courses.
- Community are ‘reaching’ to know more about urban biodiversity.
- Little active management of the intertidal zone.
- Repetition in documents



EXAMPLE DATA

Table 3. Summary of mapping data from the 2014 collation of existing mapping – areas shaded are for the Study Area

Code	Type	Community	TSC Act Listing	EPBC Act Listing	Area total (Ha)	Reserve Total (Ha)	Ratio in Reserve
S_RF02	Rainforest	Coastal Sandstone Gully Rainforest			219	205	0.94
S_RF03	Rainforest	Coastal Warm Temperate Rainforest			390	314	0.81
S_RF06	Rainforest	Coastal Dune Littoral Rainforest	Coastal Dune Littoral Rainforest	Littoral Rainforest and Coastal Vine Thickets	23.5	19.1	0.81
S_RF07	Rainforest	Coastal Escarpment Littoral Rainforest	Coastal Dune Littoral Rainforest	Littoral Rainforest and Coastal Vine Thickets	64.1	49.6	0.77
S_RF08	Rainforest	Coastal Headland Littoral Thicket	Coastal Dune Littoral Rainforest	Littoral Rainforest and Coastal Vine Thickets	131	129	0.98
S_WSF02	Wet Sclerophyll Forest	Coastal Enriched Sandstone Moist Forest			1037	741	0.71
S_WSF03	Wet Sclerophyll Forest	Coastal Sand Littoral Forest	<u>Kurnell</u> Dune Forest		81.9	47.4	0.58
S_WSF06	Wet Sclerophyll Forest	Coastal Shale Sandstone Forest			378	247	0.65

Definition

The intertidal rocky shore is an extreme habitat that is in a state of almost constant change when compared to land or the sea. Due to water movements associated with tides, waves and spray, conditions affecting different levels on the rocky shore vary continuously throughout the day.



Figure 25. Intertidal Zone



Figure 26. Rocky Shores

EXAMPLE SUMMARIES OF THE SALTY COMMUNITIES

Extent

Intertidal rocky shores are in a specific tidal zone and hence the extent is linked to suitable habitat locations. Twelve of the Councils in the study have Intertidal rocky shores along the open ocean and four have rocky intertidal areas in estuaries.

Condition

Condition assessments of Intertidal Rocky Shores have not been completed for the study area. Intertidal Rocky Shores are well studied, including those in the study area. Research topics are varied from assemblages of fauna species at different zonation's of the platform to simulated impacts of removal of invertebrates, to diversity of seaweeds. While the data is useful for the questions asked it doesn't provide a baseline of current condition.



Biodiversity Plantings and Protecting and Enhancing Existing Native Vegetation

- Replace incremental loss with incremental INCREASE. *Learn, test, improve and share* “best-practice-management” for vegetation especially EECs such as Themeda Grasslands, Saltmarsh, Forested Wetlands and Forests (LRF, SG, STIF, BGHF etc.) and threatened species at the local level.
- Form an information group (electronic) for that community, share information on research, successes/lessons, PR, contract management scope, mile-stones etc. Private users group plus public group. Schedule field engagement day with those involved – agencies, scientists, community and council.
- **ID off-set areas** and costs. Have on-ground biodiversity projects ready to implement.

Reporting and Monitoring Recommendations

- Standard minimum planning requirements for consultant reporting and off-set information (across LGAs).
- Biodiversity plan templates with minimum requirements for base-line and monitoring. Inclusion of best practice management and tailored to site species actions in each LGA.
- Template plans and regional management objectives co-ordinated via OEH or key species eg: Grey Headed Flying Fox.
- Template Plan of Management (PoMs) for wetlands.
- Monitor similar projects across as many examples as possible in an LGA. Pool funds from relevant councils for standard, scientifically robust monitoring across the study area.



Community Steward and Educational Opportunities - Workshops

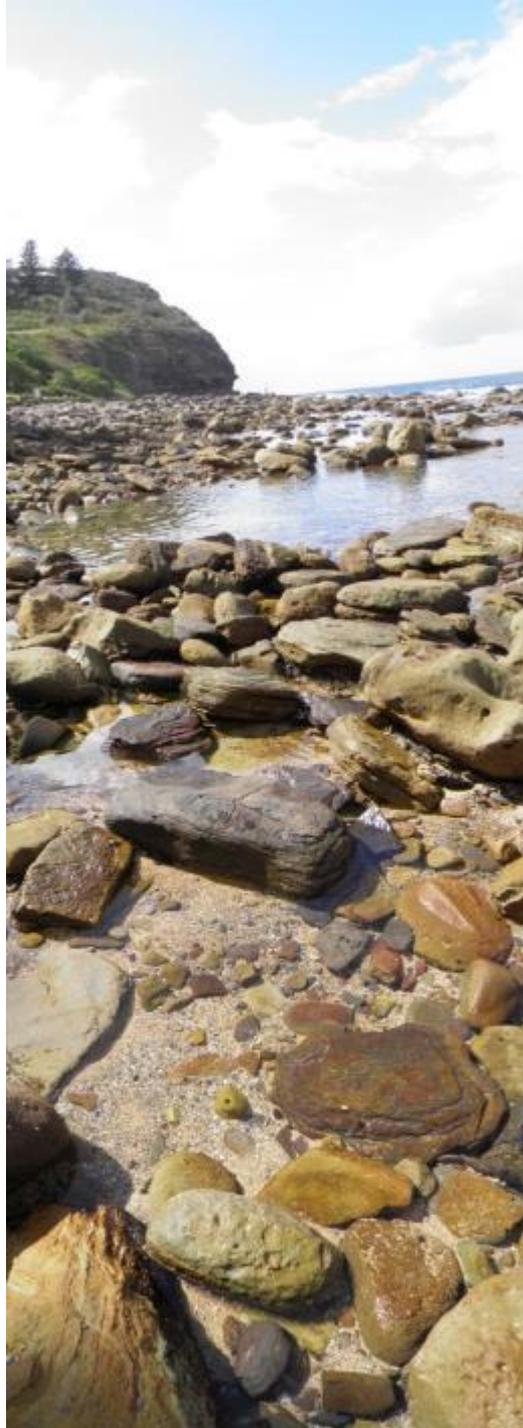
Eco Tours



REVIEW FINDINGS - FEDERAL AND STATE

- Coastal biodiversity in Sydney is a missing area from strategy and management at federal and state government levels.
- **Federal** legislation has measures to protect Biodiversity, including the coastal environment, this legislation is rarely triggered.
- Federal useful: funding and being able to refer to aims of federal legislation and international agreements.
- **State** Sydney Coastal Zone is all within the metropolitan growth area. Bio-banking and Off-sets. Useful SEPPS, REPs, Bionet, Recovery Plans, Priority Actions Statements.
- RMS, EPA and OoW have regulatory and DA role in the coastal zone.
- LLS: re-start with local and regional strategies to write.
- Sydney Water doing on-ground works in Salty Communities and for water quality from sewerage.





REVIEW FINDINGS – LOCAL GOV.

- Local Government information pertaining to biodiversity management varies considerable
- overarching statements to precise locations identified with targets and actions
- terrestrial biodiversity covered. Sea-grass included in data (mapping) not condition and intertidal areas are absent
- policy and planning information and data is in DCPs and LEPs
- Estuary Mgt: Local Government co-ordinator of strategy and works with input from relevant agencies – good system needs \$ for on-ground works
- Coastal Mgt Plans – focus on risk mgt. Do not directly address salty community biodiversity mgt.



REVIEW FINDINGS - SCIENTIFIC

Scientific Research in the urban coastal zone has a long history the most iconic possibly the work of Bennet and Dakin.

Key research institutions working in the Coastal Zone.

Research provides detailed information on:
soft bottom sediments, sea-grass, rocky-shores, seaweeds,
saltmarsh and mangroves.

Fauna studies include intertidal invertebrates and crabs, fish.

Expert enquiry process into impacts on Coastal Biodiversity and how to detect change.



REVIEW FINDINGS – COMMUNITY AND NGO



Community members and groups such as Birds Australia, Wildlife rescue Centres, EcoDivers etc. collect and collate data on Coastal Biodiversity in Sydney. More could be obtained from the community for review



REVIEW FINDINGS – GAPS

Gaps include:

- Coastal intertidal zone – missing from Council Biodiversity Plans or equivalent documents. Also missing, in detail, from State and Federal Government plans.
- Condition of marine communities (seagrass and soft bottom benthos) and some intertidal communities (saltmarsh and mangroves).
- Template conditions on consent or requirements for consultants advising on mitigation of works in areas of coastal biodiversity.
- Clarity of jurisdiction and responsibility over matters in the marine and intertidal zone (e.g. nets on netted swimming areas).
- Science to on-ground management.
- Scientific information: Carrying capacity, indicator species / systems.
- Training for planning and compliance personnel.
- Locally accurate science relating to potential changes in physical conditions in the coastal zone. E.g. sand dynamics: some beaches may accrete while other erode.
- Effectiveness and alternatives for mitigation of impacts in the coastal zone – e.g. is raising saltmarsh level effective in keeping it in the optimal tidal inundation zone?
- Funding: Council as co-ordinators of the Estuary Mgt Process are ready to continue the role out of joint agency projects, such as sea-grass work, however funding is required.

GREAT TO BE WORKING WITH YOU ON THE SALTY COMMUNITIES PROJECT



KINGFISHER URBAN ECOLOGY AND WETLANDS

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Port Botany Expansion Project



Managing Sea-level Rise and Saltmarsh





Moving Forward



Thank you

